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ABSTRACT

Intended to help others conducting leadership development programs, this document summarizes the procedures for and results of the evaluation of 10 vocational education leadership development programs. The programs were at the following institutions: Colorado State University, Indiana State University, Iowa State University, Mississippi State University, North Carolina State University, the University of Georgia, the University of Maryland, and the University of Minnesota. (Two programs were offered twice, making 10.) After a section on background information, the second section describes the evaluation design, procedures used, and the study's limitations. Results are reported in the third section, and highlights of the results appear in the fourth section. The document concludes with recommendations, 12 references, and 15 appendices. The appendices contain a program description, participant description form, post-program survey instrument, the Leader Attributes Inventory, 6-month behavior and performance survey instrument, evaluation summaries of the individual programs, and the distribution of retrospective scores. The following recommendations are reported: (1) the success of the 10 programs justifies implementing more programs for graduate students; (2) leadership development programs should include careful course structure to focus on objectives, help for participants to construct a cognitive model of leadership, team-building experiences, the use of self-assessment instruments, opportunities for guided practice in applying the leadership attributes to be changed; and (3) the use of the Leader Attributes Inventory. (CML)

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University of California, Berkeley

AN EVALUATION OF TEN LEADERSHIP DEVELOPMENT PROGRAMS FOR GRADUATE STUDENTS IN VOCATIONAL EDUCATION

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BACKGROUND

Leadership Development and the National Center for Research in Vocational Education

There probably can never be enough good leaders. However, in periods of instability, in which change in the environment makes the familiar ways of conducting the affairs of an organization unsatisfactory or irrelevant, the need for good leaders becomes especially critical. Vocational education is now in such an unstable situation. Changes in the nature of work, increasing public demands upon the educational system, and changes in the ethnic and cultural composition of the student body are challenging vocational education to justify its place in the educational enterprise. Vocational education must begin its own transformation if it is to remain a viable form of education in the new environment. Now, as much as in any previous era, vocational education needs effective leaders.

Unfortunately, persons throughout the country who were consulted during the formulation of plans for the National Center for Research in Vocational Education (NCRVE), and those who have been interviewed specifically for the purpose of exploring strategies for leadership development, unanimously believe that vocational education does not now have the number of effective leaders that are urgently needed. More importantly, they also agree that a systematic effort to develop leaders is not being made.

Consequently, about four-and-a-half years ago NCRVE began a program of research and service to create and provide effective leadership development services for vocational educators. The long-range intent was, and still is, to increase the number and improve the quality of leaders prepared to meet present and future challenges facing vocational education.

NCRVE's Program of Leadership Research and Service

Despite the thousands of publications about leadership that have been written by authors from a wide variety of disciplines and fields of practice, there is no agreement about what leadership is, why it occurs, how it is developed, or how it should be assessed. Fortunately, there is consensus that leadership can be recognized in practice, that aspects of behavior can be related to performance as a leader, and that educational interventions can affect the behavior of leaders. Therefore, it was necessary for NCRVE to begin its program of leadership research and service by creating a conceptualization consistent with the available empirical evidence and which serves NCRVE's leadership development purposes. The conceptualization that resulted from an extensive review of the literature, as well as interviews with theorists and leadership trainers, defined leadership and leadership development. It also advanced an explanation of the sources of leadership behavior, made explicit the criteria for assessing leadership performance in vocational education, and hypothesized thirty-seven attributes—characteristics, knowledge, skills, and values possessed by individuals—which predispose desirable leadership behaviors (Moss & Liang, 1990).

Four studies were then conducted by NCRVE to test the utility and the construct validity of the conceptualization. Three of the studies showed a very strong relationship between each of the thirty-seven attributes and the leadership performance of vocational administrators (Finch, Gregson, & Faulkner, 1991; Moss & Liang, 1990; Moss, Johansen, & Preskill, 1991). The fourth study confirmed that vocational teachers actually do use the criteria postulated in the conceptualization for assessing leadership performance (Moss, Finch, & Johansen, 1991).

Given this empirical support for the conceptualization, NCRVE began to stimulate and facilitate leadership development services. The group selected as the target for its initial developmental efforts was graduate students in vocational education. This group represented a fertile source of future leaders, and a survey revealed that little leadership training was being provided for them. Further, working through institutions of higher education presented an opportunity to make leadership training a part of the institution's standard graduate curriculum, and to build faculty expertise as a resource for subsequent off-campus leadership development efforts. To assist in reaching the target group, the collaboration of the University Council for Vocational Education (UCVE) was sought and secured. In April 1990, NCRVE sponsored a three-day conference attended by forty-seven teacher educators representing thirty-one higher education institutions with graduate programs in vocational education. The purposes of the conference were to acquaint participants with NCRVE's conceptualization, make them aware of resource materials available for use in leadership development programs, and demonstrate techniques and activities designed to develop leader attributes (Moss, 1991).

Then, in May of 1990, a Request for Proposals (RFP) was sent to approximately five-hundred department heads in institutions of higher education with graduate programs in vocational education. The RFP offered a subsidy of up to $4500 to departments that would provide a new or extensively revised leadership development program for their graduate students majoring in vocational education. While the programs might take any form or length, they were required to use as instructional objectives one or more of NCRVE's thirty-seven leader attributes, and the applicants were obligated to cooperate with NCRVE in evaluating their programs.

Seven institutions were funded to offer nine leadership development programs (two programs were offered twice): Colorado State University, Indiana State University, Iowa State University, Mississippi State University, North Carolina State University, University of Georgia, and University of Maryland. A tenth program, provided at the University of Minnesota, was fully supported by the state.

This report summarizes the procedures and the results of the evaluation of each of the programs, and contains a meta-analysis of all ten programs. The principal purpose of the evaluation is to derive information and insights useful to others who are planning to conduct their own leadership development programs.

EVALUATION DESIGN AND PROCEDURES

Evaluation Questions

The evaluation of each leadership development program and the meta-analysis of the ten programs were guided by nine questions. Three questions require a description of the program, its participants, and its cost. Four questions address program outcomes—participant satisfaction, perceived change in the thirty-seven leader attributes, ability to behave and perform as leaders, and institutional impact. One question requires an evaluation of the relationships between specific program activities and changes in leader attributes. The final question seeks recommendations for program improvement. The nine questions are as follows:

1. What types of leadership activities have been developed and implemented by cooperating universities?

2. How many, and what types of people participated in the leadership development activities?

3. What were the costs of different leadership programs?

4. How satisfied were participants with the various leadership development programs?

5. To what degree did participants perceive a change in their leader attributes as a result of participating in the leadership development programs?

6. To what extent did the leadership development programs affect how participants perceive their ability to behave and perform as leaders?

7. What kinds of impact did the leadership development program have on institutions' involvement in developing and maintaining leadership learning activities for their students?

8. What activities were considered particularly effective and what leader attributes did they improve?

9. What recommendations can be made for improving leadership development activities?

Procedures

Selecting and Collecting Data

Table 1 indicates the nine evaluation questions and the means (instrumentation and techniques) used to gather the data relevant to each question. A deliberate attempt was made to utilize multiple means for each question to help ensure collecting accurate and complete information. Table 2 shows the timing of data collection with the data sources (participants or program directors).

Quantitative data provided information about participants' satisfaction with the program, their pre-program leader attributes, their post-program leader attributes, and their leadership behavior and performance six months after the conclusion of the program. Qualitative data included the program directors' and participants' perceptions about the effectiveness of various program activities.

Table 1
Evaluation Questions and Means of Data Collection

Evaluation Questions	1	2	3	4	5	6	7	8	9
Program Description	X							X	X
Faculty Description		X							
Participant Description		X							
Cost Information			X						
Post-Program Survey (Satisfaction)				X				X	X
Leader Attributes Inventory		X			X			X	X
Participant Focus Group	X			X	X			X	X
Faculty Interview	X	X	X				X		X
Six-Month Behavior and Performance Survey						X			X

Table 2
Timing of Data Collection and Data Sources

	Immediately After the Program		Six Months After the Program	
Means of Data Collection	Program Directors	Participants	Program Directors	Participants
Program Description	X			
Faculty Description	X			
Participant Description	X	X		
Cost Information	X			
Post-Program Survey (Satisfaction)		X		
Leader Attributes Inventory (LAI)		X		
Participant Focus Group		X		
Faculty Interview	X		X	
Six-Month Behavior and Performance Survey				X

Means of Data Collection

Program Description

Information about the program activities was obtained in three ways. First, the program proposal provided a general description of the intended activities. Second, after the program was completed, the director of each program was asked to complete a "Program Description" (see Appendix A). Third, program directors were interviewed in person and/or by telephone.

Faculty Description

The vitas of program directors and other faculty who were to play a major part in the program were collected as a part of the program proposal.

Participant Description

Program directors completed a "Participant Description Form" (see Appendix B), and each participant provided information about her/himself as a part of the *Leader Attributes Inventory (LAI)*.

Cost Information

Detailed budgets were received as a part of the program proposal. After instruction, during the faculty interviews, adjustments were made in the budgeted amounts to reflect actual expenditures.

Post-Program Survey

Participants' satisfaction with the way the program was organized and delivered and the value of the program was assessed by the "Post-Program Survey" (see Appendix C). The survey, administered immediately after program completion, also obtained information about the most effective major activities in each program and the specific outcomes (leader attributes) they affected.

Leader Attributes Inventory (LAI)

The *LAI* is a thirty-seven item instrument, each item consisting of the name of an attribute, a brief definition of the attribute, and a seven-point scale (from 40% to 100% in ten percentage point intervals) to measure the frequency with which the attribute is displayed. Each item is scored separately.

At the time it was used in the evaluation, three studies had been conducted to test the validity of the *LAI*. Moss and Liang (1990), using a sample drawn from all the full-time faculty employed in Minnesota's thirty-four postsecondary technical colleges (n=282), reported that *all* the posited leader attributes were strongly related to the perceived leadership effectiveness of their administrators (r=.56 to .82). It is also important to note that a combination of six attributes—(1) motivating others; (2) team building; (3) adaptable, open to change; (4) information gathering and managing; (5) willing to accept responsibility; and (6) insightful—yielded a multiple correlation of .90. Factor analysis revealed that the leader attributes can be clustered into the three main groups of social skills and characteristics, personal characteristics, and (generic) management skills. There is also some evidence that the attributes of the most effective vocational administrators can be clustered into the following eight factors: (1) cognitive, (2) organizational, (3) visionary, (4) action-oriented, (5) ethical, (6) interpersonal, (7) intellectual, and (8) energetic.

In a related study (Moss et al., 1991), part-time students majoring in management (n=38), all of whom were employed in business, rated the manager whom they knew best on each of the thirty-seven leader attributes, and the extent to which the manager had achieved each of the leadership tasks postulated in the NCRVE's conceptualization. Correlation coefficients between each of the thirty-seven leader attributes and the mean rating of the leadership tasks ranged from .40 to .88. These coefficients are very similar to those reported in the Moss and Liang (1990) study and serve to reinforce the conclusion that "all the leader attributes are strongly related to perceived leader effectiveness" (p. 14).

Finch et al. (1991) sought to determine what leader attributes, as demonstrated by behaviors, were reflective of successful vocational administrators in their work roles. Thirty-nine administrators from seven states, nominated as most effective by state-level personnel, together with seventy-eight of their instructors, described 272 actual events which exemplified effective leadership behaviors. The study report concluded that "The support that identified behaviors lend to Moss's list of leader attributes is most encouraging. Even though several of the attributes were linked to a small number of behavior examples, most attributes could be tied to a host of relevant behaviors" (p. 88).

While the evaluation study was being conducted, two additional studies were reported which contribute to the evidence about the *LAI's* validity. Migler (1991) compared the *LAI* scores of twenty-four administrators drawn from a national purposive sample of twelve "excellent" postsecondary vocational schools with a sample of twenty-four administrators employed at a random sample of twelve technical colleges in Minnesota. Groups of five teachers at each school were used to rate each administrator on the *LAI*. Migler found that the two groups of administrators had significantly different ($p \leq .05$) ratings on five of the thirty-seven leader attributes—(1) insightful, (2) tolerant of ambiguity and complexity, (3) organizing, (4) time management, and (5) decision-making. For all five attributes the administrators at the "excellent" institutions had the higher scores.

White, Asche, and Fortune (1992) reported on a study utilizing a volunteer sample of 812 adults living in five southern states, of whom ninety-six percent were African Americans and sixty-two percent women. Thirty-seven percent had less than a high school diploma. Immediately after undergoing a brief workshop to familiarize participants about leadership concepts, the *LAI* (self-report) and a questionnaire about the sample's current leadership activities were administered. It was found that in four out of seven organizations (community, youth, political, and civic) those who participated regularly in the organizations had significantly ($p \leq .05$) higher average *LAI* scores than those who participated in the organizations only occasionally or not at all. In the remaining three organizations (church, professional, and fraternal) those who participated regularly had the highest average *LAI* scores, but their scores were significantly ($p \leq .05$) greater than only those who did not participate at all. Further, the correlation coefficient between the average *LAI* score and responses to the question, "Do others consider you a leader?" was .28.

The *LAI* has three forms: (1) report-by-others, (2) self-rating, and (3) retrospective pretest, self. The report-by-others form was used in the Moss and Liang (1990) and the Moss et al. (1991) studies; teachers were asked to rate their administrators and business people were asked to rate their managers. Test-retest reliability coefficients were computed using two and three week intervals between administrations. The results from the two studies were consistent. In one study the thirty-seven item reliability coefficients ranged from .64 to .87; in the second study they ranged from .53 to .89.

The self-rating form was developed to use with graduate students because they typically do not have subordinates to rate them, nor is their peer student group familiar with their regular workplace behavior. Two problems were initially encountered with the self-rating form. First, the self-ratings had so little variability that it was not possible to secure satisfactory test-retest reliability coefficients. However, it was determined that the graduate students were actually rating themselves as *consistently* (over two administrations) as the raters had when using the report-by-others form (Moss et al., 1991). This satisfied the basic criterion of reliability. The second problem was that the graduate students rated themselves very highly on all the attributes, making it impossible to show reasonable gains in scores after any kind of treatment. To solve this problem, the self-rating form was used retrospectively; that is, after instruction in leadership (a treatment), the students were asked to complete the self-rating form as they perceived themselves to be *before* the treatment.

Howard and his colleagues (Howard & Dailey, 1979; Howard, Ralph, Gulanick, Maxwell, Nance, Gerber, 1979; Howard, Schmeck, & Bray, 1979) have produced convincing evidence that the usual pre/post self-assessment design applied to socially desirable but ambiguous constructs (like leadership) results in underestimating treatment effects because the pretest scores are inflated. At the time of the pretest, participants lack sufficient knowledge about the constructs being measured to make valid self-ratings. After engaging in the treatment, participants have greater awareness of the constructs and of their own levels of functioning with respect to them. Their frames of reference change, allowing them to make more realistic, accurate self-ratings.

In trying out the retrospective approach it was found, in fact, that the mean scores of participants were lowered, probably making them more consistent with the ratings others (followers) would have given them, and that the distributions of scores on each of the thirty-seven leader attributes began to approach normality. It was concluded that "the *LAI* can be used as a retrospective self-report to evaluate the effects of leadership development activities" (Moss et al., 1991, p. 20).

Therefore, for the purposes of this study, the *LAI* was administered immediately after the completion of the leadership development program in its retrospective pretest, self-rating form. Then, a few minutes later, the *LAI* was readministered in its self-rating form to secure participants' perceptions of their leader attributes *after* instruction. Appendix D contains the complete retrospective, pretest, self-rating form of the *LAI*, and the directions page of the self-rating form.

It was recognized that participants might inflate their self-ratings of current attributes in order to show a desirable outcome from the leadership development program. To account for this possibility, it was presumed that the attributes of energetic with stamina, personal integrity, intelligent with practical judgment, and ethical should *not* have been improved by the particular programs being conducted. The average gain score (current minus retrospective) on these four attributes for each program was, therefore, considered an estimate of the inflationary effect of the program on its participants. That average gain was subtracted from the post scores of every other leader attribute *before* any other descriptive statistics or tests of significance were calculated.

Participant Focus Group

Within a week after each program was completed, six of the eight institutions were visited by two evaluators. A focus group, which included most of the program participants, and which lasted from an hour to an hour-and-a-half, was conducted. The key questions used to elicit group input follow: What program activities were most effective? Why? What impact(s) did they have on you? What would you do to improve the program? In addition, the level of participant satisfaction with the program as a whole became evident by their comments, and the nature of specific activities was clarified.

Faculty Interviews

Three types of interviews were held. First, a number of telephone contacts were made with program directors during the conduct of the programs to monitor their progress. Second, visits to six of the eight institutions (during which the focus groups were also held) gave the evaluators an opportunity for lengthy discussions with program directors about program activities, participants, and costs. Third, about six months after the completion of most programs, a meeting of program directors was convened in Los Angeles during the 1991 American Vocational Association convention. There, directors reported on the impacts programs had made on their institutions and exchanged ideas about possible ways to improve future programs.

Six-Month Behavior and Performance Survey

Appendix E contains a copy of the survey instrument. It was sent to participants by, and returned to, program directors, who then forwarded completed instruments to NCRVE evaluators. The survey collected information about participants' employment status, leadership activities, use of the leader attributes, perception of the contribution of the program to the accomplishment of leadership tasks, and additional leadership training activities.

Limitations

Before presenting the results of the evaluation, four of its limitations should be made explicit. First, the sample of programs was small. Only ten programs were evaluated and, in the case of six-month follow-up data, only nine programs participated. Second, no experimental controls were exercised. Given the present lack of knowledge about how leadership development programs can best be delivered, it was decided to encourage programs that represented a wide variety of approaches rather than to focus prematurely on testing specific generalizations or particular methodologies, or even to designate some subset of attributes as the most appropriate instructional objectives for the programs. Consequently, the evaluation had to be planned and structured as an exploratory instead of a confirmatory study. That is, the focus is on searching for relationships that might later be subject to testing by more rigorous (experimental) designs. Third, all the data on outcome variables are based upon participant self-perceptions and self-reports of activities. These are valid measures, but the credibility of the results would have been enhanced had it also been possible to secure the views of observers about participant behaviors. Fourth, the follow-up period of six months was relatively short, albeit as long as circumstances permitted.

Given these limitations, the intent of the meta-analyses was to explore the data relevant to each evaluation question so as to identify, describe, and summarize the results in a way that is immediately and maximally useful to those who will plan and conduct future programs of leadership development.

RESULTS

Each of the ten leadership development programs was first evaluated separately. The summary of each evaluation was then sent to the program director for his or her review to ensure its accuracy. The results of these individual evaluations appear in Appendices F through N. The data about all ten programs were then examined to derive insights useful to others who may be planning to conduct their own leadership development programs. In this latter meta-analysis stage, the units of analysis were most frequently programs (n=10), but attributes (n=37) and individuals (n=180) were also used. Statistical techniques for combining, comparing, and relating data were utilized. The results of the meta-analysis relevant to each of the nine evaluation questions are in the following sections.

What Types of Leadership Activities Were Developed and Implemented?

The characteristics of the ten leadership programs varied considerably:

1. Programs ranged in length and intensity from a total of six hours in one day to ninety hours of class instruction plus one-hundred eighty hours of outside assignments distributed over a nine-month period.

2. The number of students varied from four to twenty-five per class section with a mean of 16.

3. Key features of programs included (a) seminars with a semester-long internship; (b) seminars coupled with field trips (one to five days each); (c) seminars with teams of participants instructing teachers in the field; (d) a one-day workshop focusing on health-related attributes; (e) seminars with a focus on self-assessment and planning for self-improvement; (f) three two-and-a-half- to five-day retreats with a couple of months between sessions; and (g) team-taught seminars with applications to contemporary problems in vocational education.

4. The number of leader attributes chosen as instructional objectives by each program ranged from four to twenty-two.

5. The attributes selected as instructional objectives by five or more programs included (a) communication; (b) visionary; (c) confident, accepting of self; (d) networking; and (e) team building. Four of the thirty-seven attributes were not used as instructional objectives by any of the programs: (a) accountability, (b) intelligent with practical judgment, (c) personal integrity, and (d) ethical.

For further details about each program see Appendices F through N.

How Many and What Types of People Participated?

Table 3 presents a description of the one-hundred eighty students who participated in the ten programs.

Table 3

Participant Characteristics (n=180)

Characteristic	Percent
Full-time student	39
Part-time student	61
Doctoral student	61
Other	39
Male	49
Female	51
White	86
Other	14
Experience as a school administrator	47
No experience	53
Experience as nonschool manager	68
No experience	32
35 years of age or less	27
36 years of age and over	73

What Were the Costs of Different Leadership Programs?

As shown in Table 4, the direct costs to the institutions for providing each of the programs varied a great deal. The principal causes of cost variations were program length, the nature of special activities (e.g., out-of-state travel) and the extent to which the institutions, rather than the participants, bore the cost of special activities.

Table 4

Program Direct Costs*

Item	Range	Mean	Standard Deviation
Cost of conducting the program	$7,135 - $45,386	$16,419	$11,998
Cost per student	$174 - $4,378	$1,409	$1,417
Cost per student hour of instruction	$9 - $68	$24	$18

*Excludes the cost of planning the program and indirect (overhead) costs.

How Satisfied Were Participants with the Various Programs?

Assessments of participant satisfaction with the leadership development programs were made by (1) administering the *Post-Program Survey* immediately after instruction and (2) encouraging judgments about the programs during participant focus groups.

Table 5 presents a summary of findings from the *Post-Program Survey*. The eight items on the survey were divided into the following two groups: satisfaction with program organization and delivery, and satisfaction with the value of the experience. A five-point scale was utilized.

Table 5
Participant Satisfaction with Programs⁺

Program	n	Organization and Delivery ($\bar{x}$)	Value of the Experience ($\bar{x}$)
Colorado State University* (#1)	34***	4.5	4.6
Colorado State University (#2)	—	—	—
Indiana State University	5	4.7	5.0
Iowa State University	16	4.4	4.9
Mississippi State University* (#1)	16	4.8	4.7
Mississippi State University (#2)	19	4.8	4.7
North Carolina State University	18	3.0	3.8
University of Georgia	15	4.0	4.4
University of Maryland	4	4.4	4.3
University of Minnesota**	25	4.5	4.8
All Programs (n=9)		4.3	4.6

+ A five-point scale was used.
*These institutions offered their programs twice (#1 and #2) at different times.
**Interpreted from reported data.
***Taught concurrently as two sections of seventeen students each.
$\bar{x}$ mean

The findings in Table 5 indicate that, with one possible exception, participants felt the programs were organized and delivered effectively and that the experience was of great value to them. This data was confirmed by students during the focus groups. All the groups were very enthusiastic about their experiences, they wanted a second "advanced" course, and they felt that other graduate students should have an opportunity to take a similar program.

It is evident, therefore, that participants were very satisfied with the programs and believed they were of great value to their professional development.

To What Degree Did Participants Perceive a Change in Their Leader Attributes?

Overall Changes

Frequency Distributions

In earlier studies in which the *LAI* was administered to graduate students as a self-report pretest (before treatment), the average ratings on attributes were bunched at the top of the rating scale (Moss et al., 1991). Consequently, in these evaluations, the *LAI* was administered to program participants as a retrospective self-report; that is, it was administered after the treatment to secure participants' perceptions of their attributes as they were *before* the program. This procedure proved to distribute the pre (retrospective) self-ratings more normally and to utilize the full range of ratings. (See Appendix O for the box plots of retrospective scores of the pooled group [n=165] for each attribute. Appendix O also contains the mean scores, standard deviations, and ranges for the same group.) Apparently, a major effect of the leadership development programs was to lower many participants' perceptions of their attributes as they were *before* the program.

The distributions of post (after treatment) attribute scores were much more compressed around a higher rating than were the retrospective scores. This effect was borne out by significant ($p \leq .05$) negative correlations between pre (retrospective) and gain scores on all thirty-seven attributes ($r = -.65$ to $-.85$); the lower the pre (retrospective) score, the greater the gain score was likely to be.

Group Means

As explained earlier in this report, to account for a possible inflationary tendency in completing the *LAI*, the average gain (current minus retrospective) score of each group of participants on the four attributes of energetic with stamina, personal integrity, intelligent with practical judgment, and ethical was subtracted from the post scores of every other leader attribute of that group before the data was explored for results. Further analyses were, therefore, conducted using only thirty-three attributes. Thus, it was possible for only three-hundred thirty attribute scores to show significant increases (thirty-three attributes times ten programs). Table 6 shows that a total of 118 significant ($p \leq .05$) gains were actually made in participants' perceptions of their leader attributes. In other words, of all the possible increases in attribute scores on the *LAI*, thirty-six percent had statistically significant gains.

Given these changes in frequency distributions and the number of gains in group means, it is evident that the ten leadership development programs had a significant impact on participants' perceptions of their leader attributes.

Table 6

Significant Increases in Leader Attributes by Program

Leader Attribute	Colo State Univ #1	Colo State Univ #2	Ind State Univ[1]	Iowa State Univ	Miss State Univ #1	Miss State Univ #2	N. Carolina State Univ	Univ of Georgia	Univ of Maryland[1]	Univ of Minnesota	No. Times as Inst. Obj.	No. of Signif Gains
1. Energetic with stamina					O	O					2	0
2. Insightful	O	O	O	+	+	+	+	O	+	+	4	6
3. Adaptable, open to change	⊕	⊕	+	+			+	⊕	+	⊕	4	8
4. Visionary	O	O	⊕		+		+	⊕	⊕	+	5	6
5. Tolerant of ambiguity and complexity	+	+	⊕	+		+	⊕	+		⊕	3	8
6. Achievement-oriented	O	O		+						O	3	1
7. Accountable										+	0	1
8. Assertive, initiating	+		+	+				+		⊕	1	4
9. Confident, accepting of self	⊕	O	+	O			⊕	+		⊕	5	5
10. Willing to accept responsibility	O	O		O					O	⊕	5	1
11. Persistent					+		+	O		+	1	3
12. Enthusiastic, optimistic				O		+	+	O		⊕	3	3
13. Tolerant of frustration	+	+	+		O	⊕				+	2	5
14. Dependable, reliable				O							1	0
15. Courageous risk-taker	+			⊕	+		⊕			⊕	3	5
16. Emotionally balanced			+		⊕	⊕				+	2	4
17. Committed to the common good	O	O				+			O	⊕	4	2
18. Personal integrity											0	0
19. Intelligent with practical judgment											0	0
20. Ethical											0	0
21. Communication (listening, oral, written)	⊕	O	⊕				O	O		O	6	2
22. Sensitivity, respect	O	O					O			O	4	0
23. Motivating others	⊕	O		+			⊕			⊕	4	4

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Table 6 (cont.)

Leader Attribute	Colo State Univ #1	Colo State Univ #2	Ind State Univ[1]	Iowa State Univ	Miss State Univ #1	Miss State Univ #2	N. Carolina State Univ	Univ of Georgia	Univ of Maryland[1]	Univ of Minnesota	No. Times as Inst. Obj.	No. of Signif Gains
24. Networking	+		O	O			+	O	⊕	⊕	5	4
25. Planning	+	+	O	O			+			⊕	3	4
26. Delegating		+	+	O	+		+			⊕	2	5
27. Organizing			O	O							2	0
28. Team building	O	O	+	O				O		⊕	5	2
29. Coaching				⊕	+				+	+	1	4
30. Conflict management	+	+	O	+	+	+	O			⊕	3	6
31. Time management	+						+		O	⊕	2	3
32. Stress management		+	+		O	⊕				+	2	4
33. Appropriate use of leadership styles	+		⊕				+			⊕	2	4
34. Ideological beliefs appropriate to group			+	+	+			+			0	4
35. Decision-making			O	O			+	O		O	4	1
36. Problem-solving	+		O	O	+	+	+	+		O	3	5
37. Information gathering and managing	+		O		+					⊕	2	3
Number of instructional objectives	11	11	12	13	4	4	7	9	5	22		
Number of significant gains	15	7	13	10	11	9	16	7	5	25		
Number of instructional objectives with significant gains	4	1	4	2	1	3	4	2	2	17		
Percent of instructional objectives with significant gains	36	9	33	15	25	75	57	22	40	77		

O = Instructional objective.

+ = Statistically significant increase ($p \leq .05$).

[1] = Because of very small numbers of participants, gain scores of 7.6 percentage points or greater were considered equivalent to statistical significance.

Change in Relation to Program Characteristics

Building Readiness for Change

As a result of discussions with program directors and focus group sessions with participants, it became evident that providing experiences which build readiness for change was related to the number of leader attributes that were improved. *More specifically, readiness for change was developed by providing experiences for team building, and assessing participants' attributes, with time for reflective self-analysis and goal setting.* Team building helped to create a supportive environment in which program participants could express their true feelings, accept constructive feedback, and be encouraged to make changes. Self-assessment of attributes, getting to know oneself better in terms of leader attributes, and accepting the desirability for change are prerequisite to setting individual goals and subsequent improvement.

Engaging the Active Involvement of Participants

Information volunteered by program participants and directors also revealed that *the more focused and structured the experience, and the more active the involvement of the student, the more likely it was for attributes to change.* The importance of this finding was reinforced many times by participants who distinguished between "learning *about* leader attributes and *changing* specific attributes." The former could be achieved by seminars, but the latter was accomplished by carefully planned and structured experiences which required the direct, active engagement of participants—experiences like simulations, games, and exercises.

Instructor Time with Students

As is evident from Table 7, the number of leader attributes that were improved significantly varied from five to twenty-five among the ten programs. The number of hours that the instructor spent with students during the ten programs varied from six to ninety hours (also see Table 7). A Spearman rank order correlation (r_S) between these two variables yielded a significant positive correlation ($p \leq .05$) of .56. *Apparently, the number of leader attributes that was improved significantly by a program is related to the number of hours of directly supervised instruction; the more time devoted the greater the likelihood of improvement.* Although this result could have been anticipated, it is nevertheless gratifying to find the expected.

Table 7
Number of Attributes Improved and Program Characteristics

Program	No. of Attributes Increased Significantly	Hrs. of Directly Supervised Instruction	Cost Per Student
Colorado State University #1	15	30	$297
Colorado State University #2	7	30	$341
Indiana State University	13	64	$4,378
Iowa State University	10	45	$1,109
Mississippi State University #1	11	6	$174
Mississippi State University #2	9	6	$174
North Carolina State University	16	61	$575
University of Georgia	7	45	$1,166
University of Maryland	5	16	$2,916
University of Minnesota	25	90	$1,813

Cost Per Student

A large portion of the programs' cost (shown in Table 7) was due to instructors' salary, which varied according to the time each instructor devoted to the program. It is not surprising, therefore, that a positive relationship ($p \leq .05$) was found between program cost per student and hours of supervised instruction (Spearman rank order coefficient of .68). On the other hand, ***the relationship between program cost per student and the number of attributes which increased significantly was*** not ***significant.*** As noted above, factors in addition to instructor time such as building readiness for change and engaging the active involvement of students also contributed to program effectiveness.

Instructional Objectives

In order to receive partial financial support from NCRVE, each leadership development program had to use the improvement of one or more leader attributes as instructional objectives. Based upon the evidence presented in Table 6, programs were not very successful in developing pre-specified attributes. Just forty of the ninety-five attributes pre-specified as instructional objectives (41%) made significant ($p \leq .05$) gains.

From another perspective, of all the significant gain scores of attributes, only thirty-four percent were pre-specified as instructional objectives while sixty-six percent were not pre-specified as instructional objectives. There are several possible reasons for this result: (1) individuals were given choices in their reading and other assignments, thereby being exposed to some different learning experiences; (2) individuals inevitably learn different things from the "same" instruction, as they interpret the experience in terms of their own values and cognitive structures; (3) the attributes may not be entirely independent; and (4) program designers do not yet know the best ways to develop particular attributes.

Change in Relation to Participant Characteristics

Age

Six of the ten leadership development programs had sufficient numbers of participants in both the thirty-five years and under and the thirty-six years and over age categories to warrant testing for differences in their gain scores. Of a possible 198 differences in the six programs (thirty-three attributes times six programs), just fourteen significant ($p \leq .05$) differences in attribute gain scores were found between the two age groups. Ten of the fourteen significant differences in gain scores favored the thirty-five and under age group. No meaningful patterns were found in the kinds of attributes that had significant gains for either age group. *Given the small proportion of significant differences in gain scores found between the two age groups, it is not likely that the age of participants in the ten programs is meaningfully related to their gain scores on the* LAI.

Experience as a School Administrator

Seven of the ten programs had sufficient numbers of participants with and without experience as school administrators to warrant testing for differences in their gain scores. Of a possible 231 differences (seven programs times thirty-three leader attributes), only ten were found to be significant ($p \leq .05$). Six of the ten significant differences favored the participants with no school administration experience. No patterns were discerned between the groups in the kinds of attributes that had significant gains. *In light of the small proportion of significant differences found, it is not likely that there is a meaningful relationship between experience as a school administrator and gain scores on the* LAI *for the participants of these programs.*

Experience as a Nonschool Manager

Seven programs had adequate numbers of participants with and without experience as a manager in nonschool settings to justify testing for differences in their gain scores. Of the possible 231 differences, thirteen were found to be significant (p≤.05); eleven of the thirteen favored the non-experienced group. No meaningful patterns were discovered in the kinds of attributes that had significant gains for either group. *Consequently, there does not appear to be a meaningful relationship between* LAI *gain scores and management experiences in nonschool settings for the participants of these programs.*

Gender

Seven of the ten programs had sufficient numbers of men and women participants to justify testing for differences in their gain scores. Nine of a possible 231 significant differences (p≤.05) were found. Four of the nine favored women and five favored men. The nine significant differences were found in nine different attributes. *Thus, there appears to be no reason to believe that, for these participants and leadership development programs, there is a meaningful relationship between gender and gain scores on the* LAI.

Degree Objective

There were only four of the ten programs with sufficient numbers of students pursuing the doctorate versus other degrees to warrant testing for differences in their attribute gain scores. Six of the possible 132 differences were found to be significant (p≤.05). Five of the six significant differences were in favor of the doctoral students. All six differences were found in different attributes. *Therefore, there appears to be no meaningful relationship between degree objective and* LAI *scores among the participants in these programs.*

Part-Time Versus Full-Time Students

Four programs could be tested for differences in the *LAI* gain scores of part- and full-time students. Only five of the possible 132 differences were found to be significantly (p≤.05) different. Four of the five differences favored the part-time students. All five differences were found in different leader attributes. *Consequently, there appears to be no meaningful relationship between part- vs. full-time status and* LAI *gain scores for the participants of these programs.*

Change in Specific Attributes

Readily Improved Attributes

Whether they were used as instructional objectives or not, five leader attributes were significantly ($p \leq .05$) improved by six or more of the ten programs. These were (1) insightful; (2) adaptable, open to change; (3) visionary; (4) tolerant of ambiguity and complexity; and (5) conflict management (see Table 6).

Attributes Not Readily Improved

On the other hand, seven leader attributes proved resistant to change. Each of the seven was used as an instructional objective by at least three programs, yet was improved significantly ($p \leq .05$) by only two or less of the ten programs. These attributes were the following: (1) achievement-oriented; (2) willing to accept responsibility; (3) committed to the common good; (4) communication; (5) sensitivity, respect; (6) team building; and (7) decision-making (see Table 6).

Relation to Leadership Performance

In a previous study (Moss & Liang, 1990), six leader attributes were found (in combination) to explain eighty-one percent of the variation in measured leadership effectiveness. These attributes were (1) motivating others; (2) team building; (3) adaptable, open to change; (4) gathering and managing information; (5) willing to accept responsibility; and (6) insightful. *Apparently, of the six attributes that best explain the variation in leader effectiveness, two were readily improved (adaptable, open to change and insightful) while two were more resistant to change (team building and willing to accept responsibility).*

To What Extent Did the Leadership Development Activities Affect How Participants Perceive Their Ability to Behave and Perform as Leaders?

Usefulness of the Leader Attributes

As part of the six-month follow-up, participants were asked, "Which of the leader attributes developed by the program have been most useful to you?" Table 8 summarizes the responses averaged across each of nine programs. (One of the ten programs did not conduct a follow-up.) Note that an average of fifteen to fifty-six percent of the respondents from each program nominated each of the thirty-seven leader attributes; all of the attributes must have been used. Six of the attributes were found most useful by more than fifty percent of the respondents: (1) insightful; (2) adaptable, open to change; (3) visionary; (4) willing to accept responsibility; (5) communication (listening, oral, written); and (6) team building. Four of these six most useful attributes are among the six characteristics that a prior study found best explain the variation in leader effectiveness (Moss & Liang, 1990): (1) insightful; (2) adaptable, open to change; (3) willing to accept responsibility; and (4) team building. *It appears that all thirty-seven attributes were used by participants during the six-month period following instruction, and that the attributes reported by participants to be most useful tended to be among the attributes that best explained effective leader performance.*

Table 8

Percent of Respondents Reporting Leader Attributes to be "Most Useful"*

Attribute	Average Percent in Each Program (n=9)	Attribute	Average Percent in Each Program (n=9)
Adaptable, open to change	56	Organizing	35
Communication (listening, oral, written)	55	Information gathering and managing	35
Insightful	51	Tolerant of ambiguity and complexity	35
Visionary	51		
Team building	50	Committed to the common good	34
Willing to accept responsibility	50	Assertive, initiating	34
Confident, accepting of self	48	Stress management	34
Motivating others	47	Dependable, reliable	32
Planning	47	Time management	31
Networking	45	Tolerant of frustration	31
Appropriate use of leadership styles	42	Achievement-oriented	30
		Persistent	29
Decision-making	41	Intelligent with practical judgment	29
Problem-solving	41		
Enthusiastic, optimistic	40	Ethical	28
Courageous, risk-taker	37	Energetic with stamina	27
Personal integrity	37	Accountable	26
Conflict management	37	Emotionally balanced	24
Sensitivity, respect	36	Coaching	19
Delegating	36	Ideological beliefs are appropriate to the group	15

*77% average response rate from each of the nine programs. One of the ten programs did not conduct a follow-up.

Ease of Improving the Most Useful Leader Attributes

Three of the six most useful leader attributes are among the five attributes readily improved by the leadership development programs (insightful; visionary; and adaptable, open to change). On the other hand, these three of the most useful attributes have shown themselves to be more resistant to change: (1) willing to accept responsibility, (2) communication (listening, oral, written), and (3) team building. (See previous sections on "Readily Improved Attributes" and "Attributes Not Readily Improved.") *Evidently only half of the most useful leader attributes are readily improved, at least by the leadership development programs as implemented.*

Contribution to Effective Leadership Performance

Six months after the conclusion of instruction, participants rated their programs on the extent to which they had contributed to success in accomplishing the following six leadership tasks: (1) inspiring a shared vision, (2) achieving unity in the group and motivating others, (3) implementing change and empowering others, (4) exerting influence outside of the group, (5) establishing a good learning environment, and (6) satisfying the professional needs of group members. The ratings for each of the six tasks were averaged to obtain a mean for each program, and then an average of the nine program means was computed. The overall mean rating was 2.8 on a four-point scale (see Table 9). *This indicates that participants felt the programs had, on the whole, contributed a "fair amount" to their successful performance as leaders.* This finding is consistent with those drawn earlier in this report. Participants agreed with prior research about the importance of certain attributes to successful leadership performance, but gain scores on the *LAI* showed that only half of these "most useful" attributes were readily improved. Thus, participants could only gain a "fair amount" from the programs.

Spearman rank order correlations between the mean ratings given to each program by participants on the extent to which the program had contributed to success in accomplishing six leadership tasks and (1) number of attributes increased significantly, (2) hours of directly supervised instruction, and (3) cost per student all failed to produce statistically significant ($p \leq .05$) coefficients (see Tables 6 and 8 for the data used).

Table 9
Program Contribution to Effective Leadership Performance

Program*	Respondents	Mean of 6 Tasks**	Standard Deviation
Colorado State University #1	17	2.8	.58
Indiana State University	5	2.7	.30
Iowa State University	12	2.6	.52
Mississippi State University #1	12	2.9	.47
Mississippi State University #2	14	2.6	.53
North Carolina State University	13	2.8	.60
University of Georgia	9	2.9	.45
University of Maryland	2	3.1	.85
University of Minnesota	22	3.2	.34
Average of the Programs	11.8	2.8	.52

*One of the ten programs did not conduct a six-month follow-up.
**1=none, 2=little, 3=fair amount, 4=great deal.

Additional Leadership Activities Undertaken

One of the questions asked of participants in the follow-up was "As a result of the leadership development program, do you believe you engaged in a greater number of leadership activities during the last six months?" As shown in Table 10, an average of fifty-seven percent of the participants in each of the nine programs reported in the affirmative. There were no significant differences ($p \leq .05$), as tested by the Lawshe-Baker nomograph (Lewin, 1979), among the percentages reported for each program. Table 10 also indicates the types of additional leadership activities in which participants engaged and their relative emphasis; forty-five percent of the additional activities were job-related, twenty-four percent were in new professional roles, twenty-one percent were community activities, and ten percent were social activities. *To sum up, an average of fifty-seven percent of the participants in each program reported engaging in a greater number of leadership activities during the six-month period following instruction than they engaged in before the program.*

Table 10
Additional Leadership Activities in Which Participants Engaged

Program*	Participants Engaged in Additional Activities (%)	Types of Activities			
		Job-Related (%)	New Professional Roles (%)	Community Involvement (%)	Social Activities (%)
Colorado State University #1	55	61	22	13	4
Indiana State University	80	25	0	25	50
Iowa State University	54	33	33	33	0
Mississippi State University #1	62	58	25	8	8
Mississippi State University #2	36	25	0	63	12
North Carolina State University	47	50	20	20	10
University of Georgia	60	50	38	12	0
University of Maryland	50	50	50	0	0
University of Minnesota	73	52	31	14	2
Average of the Programs	57	45	24	21	10

*One of the ten programs did not conduct a six-month follow-up.

Further Leadership Training Experiences

Table 11 shows that between zero and forty-five percent of the participants in each program reported themselves to have engaged in further leadership training during the six-month period following the programs (x=18 percent). While there were significant differences (p≤.05) among some programs in the percent of participants who engaged in further training, there were no statistically significant relationships found with either hours of supervised instruction or with number of attributes increased significantly. The type of additional training undertaken consisted principally of courses/workshops and focused readings.

Table 11
Further Leadership Training Experiences in Which Participants Engaged

Program*	Participants Engaged in Further Training (%)	Types of Training				
		Courses and Workshops (%)	Internships (%)	Training Mentors (%)	Focused Reading (%)	Dissertation (%)
Colorado State University #1	45	56	11	11	22	0
Indiana State University	0	0	0	0	0	0
Iowa State University	31	63	0	0	25	12
Mississippi State University #1	0	0	0	0	0	0
Mississippi State University #2	14	50	0	0	50	0
North Carolina State University	7	0	0	0	100	0
University of Georgia	20	0	0	0	100	0
University of Maryland	0	0	0	0	0	0
University of Minnesota	45	71	0	0	29	0
Average of the Programs	18	27	1	1	36	1

*One of the ten programs did not conduct a six-month follow-up.

What Kinds of Impact Did the Leadership Development Programs Have on the Institutions?

At a meeting of the program directors held six months after the programs were completed, the directors reported that their leadership development programs had a variety of impacts on their institutions. In terms of leadership development courses, (1) four of the eight institutions have begun to provide new leadership development courses as a part of their regular graduate offerings; (2) a fifth institution has increased an existing leadership course from two to three semester hour credits; and (3) two other institutions have decided to revise existing courses at the graduate and/or undergraduate levels to incorporate leadership development goals, activities, and materials. The eighth institution is attempting to repeat the same special program described in this report. In addition, several directors reported noncurricular outcomes such as (1) encouraging students and faculty from the three vocational departments involved in their project to begin to develop closer working relationships, (2) attracting new students to the department because of participant networking, and (3) initiating an institution-wide study of leadership development opportunities. (See Appendices F through N for further details.) *It seems apparent that the* *directors believe the leadership development programs sponsored by NCRVE are making important and desirable impacts on their institutions.*

What Activities Were Considered Particularly Effective and What Leader Attributes Did They Improve?

It is desirable to determine the linkages between instructional activities and their outcomes with as much specificity as possible; that is, to answer the question, "What method and/or content should be used to improve a specific leader attribute or set of attributes?" Given answers to this question, once the leader attributes to be enhanced are determined, designers of leadership development programs can create more effective and efficient educational experiences.

Toward this end, qualitative data was gathered from participants at the end of each of the ten leadership development programs. Participants responded in writing to the question, "Which major activities of the program were most effective and what impacts/effects did they have on you and/or the group? In responding, relate the nature of each activity to its outcome(s)." In addition, focus groups of participants from six programs were conducted during which three key questions were posed: "What program activities were most effective? Why? What impact(s) did they have on you?"

All of the following criteria needed to be satisfied before activities were presumed to be linked to specific leader attributes: (1) the activity was tried in at least five programs; (2) it was nominated as effective by participants in at least four programs; (3) the nominated activity was linked to the same outcome (leader attribute) in at least two of the four programs; and (4) the *LAI* score of the linked outcome (attribute) was also significantly increased in the same two programs.

Based upon the data available and the conservative criteria utilized, *it appears that two kinds of program activities are effective in improving certain kinds of leader attributes.* These activities follow.

Self-Assessments

Self-assessments consisted of inventories and tests, some administered by computer, to assess participants' characteristics and skills which were believed to be related to leadership capacity and/or performance. They included, for example, Personal Profile System, Values Analysis System, Acumen, Meyers-Briggs Type Indicator, Dolphin Strategy, and LEAD-self. In most cases, the feedback of inventory and test results to participants was accompanied by a planning activity in which individuals set goals for improving their leadership capacity and performance and designed strategies for attaining the goals. The reasons for the self-assessment activities were to (1) sensitize participants to their weaknesses as the basis for improvement and to their strengths as the foundation for building on them; (2) help participants understand, appreciate, and respect behavioral differences among individuals; and (3) enhance participants' confidence and acceptance of self.

The self-assessment activities seemed to succeed in helping participants think of themselves as more confident and accepting of self, as well as to improve their adaptability and openness to change. Since some of the instruments used in the self-assessments dealt with leadership styles, the participants also learned about the appropriate uses of different leadership styles in different situations.

Observations/Interviews of Leaders at Work

Participants spent from one to four days observing, interviewing, and "shadowing" one or more leaders in education or business. In one program, participants were also required to submit a written report of the experience assessing the behavior of the leader(s) in terms of the leadership concepts discussed in the program seminars. The purposes of these activities were to help participants test themselves against role models, and provide examples of and reinforce the leadership concepts dealt with in seminars.

The actual impacts of these activities were to make participants perceive themselves as more visionary and courageous risk-takers. The extent to which these attributes were considered important and used by the leaders being observed apparently motivated changes in participant behavior. In fact, the very act of arranging to shadow leaders required risk-taking behavior on the part of some participants.

HIGHLIGHTS FROM THE RESULTS

The following highlights have been abstracted from the results of the meta-analysis of the ten leadership development programs in order to summarize and reinforce them:

1. Based upon both qualitative and quantitative data, participants were very satisfied with the programs, and believed they were of great value to their professional development.
    - The average rating of the ten programs on the question of "value of the experience" was 4.6 (5-point scale).
    - Participants not only felt that similar programs should be made available to other graduate students, they also wanted the programs to be lengthened or additional programs provided.

2. Overall, the ten programs had a significant impact on the participants' perceptions of their leader attributes.
    - Of all possible increases in attribute scores on the *Leader Attributes Inventory (LAI)*, thirty-six percent had statistically significant ($p \leq .05$) gains.
    - A major effect of the programs was to lower participants' perceptions of their attributes as they were *before* the program (retrospective scores).
    - The distributions of post (after treatment) attribute scores were much more compressed around a higher point value than were the pre (retrospective) scores. This effect was demonstrated by significant ($p \leq .05$) negative correlations between pre (retrospective) and gain scores on all thirty-seven attributes ($r = -.65$ to $-.85$).

3. The number of leader attributes that improved significantly appears to be related to certain program characteristics.
    - Readiness for change was developed by providing experiences for team building, and assessing participants' attributes, with time for reflection and goal setting.
    - The more focused and structured the experience, and the more active the involvement of the student, the more likely it was for attributes to improve.

    - The number of hours of directly supervised instruction was positively related ($p \leq .05$) to the number of attributes that increased significantly ($r_s = .56$).

4. There was a positive relationship between program cost per student and hours of directly supervised instruction ($r_s = .68$).
    - A large portion of program cost was the instructor's salary, which varied according to the amount of time devoted to the program.
    - The relationship between cost per student and the number of attributes which increased significantly was *not* significant. Factors other than program length apparently contributed to program effectiveness. (See item 3 above.)

5. Programs were not very successful in developing pre-specified attributes.
    - Just forty-one percent of the attributes specified as instructional objectives by the programs made significant ($p \leq .05$) gains.
    - Of all the significant attribute gain scores, only thirty-four percent were pre-specified as instructional objectives; sixty-six percent were not pre-specified as instructional objectives.
    - There are several possible reasons for this result: (1) Individuals were given choices in reading and other assignments, and thus were exposed to different experiences; (2) individuals inevitably learn different things from the "same" instruction as they interpret the experience in terms of their own values and cognitive structures; (3) the attributes may not be entirely independent; and (4) program designers do not yet know the best way to develop specific attributes.

6. Improvements in leader attributes were *not* meaningfully related to any of the participant characteristics measured as a part of the evaluation.
    - Only three percent of the possible differences in *LAI* gain scores between the thirty-five years and under and the thirty-six years and over age groups were significant ($p \leq .05$).
    - Just four percent of the possible differences in *LAI* gain scores between the participants with experience as school administrators and the participants without that experience were significant.

- About six percent of the possible differences in *LAI* gain scores between the participants with experiences as nonschool managers and the participants without that experience were significant.
- Only four percent of the possible differences in *LAI* gain scores between women and men were found to be significant.
- About five percent of the possible differences in *LAI* gain scores between participants pursuing the doctorate and those with other degree objectives were found to be significant.
- Just four percent of the possible differences in *LAI* gain scores between participants who were part- and full-time students were found to be significant.

7. Of the six attributes that best explain leader effectiveness (Moss & Liang, 1990), two were readily improved and two appeared more resistant to change.
   - The readily changeable attributes were adaptable, open to change; and insightful.
   - The more resistant attributes were team building and willing to accept responsibility.
   - Table 12 shows this relationship.

8. All thirty-seven leader attributes were used by participants during the six-month period following instruction.
   - Between fifteen and fifty-six percent of the respondents considered each of the leader attributes "most useful."
   - Six attributes were considered most useful by fifty percent or more of the respondents: (1) insightful; (2) adaptable, open to change; (3) visionary; (4) willing to accept responsibility; (5) communication (listening, oral, written); and (6) team building.

9. The attributes considered "most useful" by the highest percentage of the participants tended to be the attributes that best explained effective leader performance.
   - Four of the six attributes considered most useful by fifty percent or more of the respondents were also among the group of six attributes that best explained the variation in leader effectiveness (per the Moss & Liang, 1990 study). These were (1) adaptable, open to change; (2) insightful; (3) willing to accept responsibility; and (4) team building.

- Table 12 shows this relationship.

10. Six months after the programs, participants felt that the experience had, on the whole, contributed a "fair amount" to their successful performance as leaders.
    - The mean rating on a four-point scale was 2.8.
    - Only half of the six "most useful" attributes were found to be readily improved by the leadership programs: (1) adaptable, open to change; (2) insightful; and (3) visionary. Thus, participants gained only a "fair amount" from the programs.
    - Table 12 shows these relationships.

Table 12
Relationships Among Attributes: Ability to Explain Performance, Usefulness, and Readiness to Change

Leader Attribute	Best Explain Leader Performance*	Most Useful to Participants	Readiness to Change: Most Ready	Readiness to Change: Most Resistant
Adaptable, open to change	x	x	x	
Insightful	x	x	x	
Willing to accept responsibility	x	x		x
Team building	x	x		x
Motivating others	x			
Gathering and managing information	x			
Visionary		x	x	
Communication		x		x

*From Moss & Liang, 1990.

11. An average of fifty-seven percent of the participants in each program engaged in a greater number of leadership activities during the six-month period following instruction than they had engaged in before the instruction.
    - There were no differences among the programs in the percent of participants who engaged in a greater number of leadership activities.
    - Forty-five percent of the additional leadership activities were job-related; twenty-four percent were in new professional roles; twenty-one percent were community activities; and ten percent were social.

12. Eighteen percent of the participants reported engaging in additional leadership training activities during the six-month period following instruction.
    - There were significant differences among programs in the percent of students who engaged in further training, but these percentages were *not* related to hours of supervised instruction or number of attributes that were significantly improved.
    - The kinds of further training reported were primarily focused readings, courses, and workshops.

13. The programs appear to be having some important and desirable institutional impacts.
    - Four institutions were adding new leadership courses to their regular graduate curriculums, and three other institutions were revising existing graduate or undergraduate courses to include greater emphasis on leadership development.
    - A number of noncurricular outcomes were also reported by directors (e.g., the initiation of an institution-wide study of leadership development opportunities).

14. Certain kinds of program activities appear to be effective in improving certain leader attributes.
    - Self-assessment (with planning) improved the attributes of (1) confident, accepting of self; (2) adaptability, open to change; and (3) appropriate use of leadership styles.
    - Observations and interviews of leaders at work improved the attributes of (1) visionary, and (2) courageous, risk-taker.

15. *LAI* is a useful assessment tool.
    - *LAI* was sensitive to the effects of treatments on attributes (means and distributions).
    - It was not sensitive to differences among graduate students' age, experience as a school administrator, experience as a nonschool manager, gender, academic status, or part- or full-time participation in a degree program.
    - The attributes it assesses were used by participants in their leadership activities.

RECOMMENDATIONS

Based upon the results of the meta-analysis, the following recommendations seem warranted:

1. The success of the ten leadership development programs justifies implementing a greater number of programs for graduate students in vocational education, and continuing research and development to improve their effectiveness.

2. Leadership development programs for graduate students should include the following characteristics:
   - Careful course structure and direction by the instructor are necessary to keep participants focused on the program objectives.
   - Participants should be helped to construct a cognitive model of leadership that can guide their further leadership development. Readings, presentations by role models, and "shadowing" experiences are helpful in this regard.
   - Team building experiences should be provided early in the program to build a safe, supportive environment in which attribute changes are encouraged and facilitated.
   - At the same time, a number of self-assessment instruments (inventories and tests) of leader qualities and styles should be administered to (1) sensitize participants to their weaknesses as a basis for improvement and to their strengths as a foundation for building upon; and (2) help participants understand, respect, and appreciate behavioral differences among individuals.
   - Opportunities to plan for self-improvement, based upon self-assessment, are useful mechanisms to encourage reflection and goal setting.
   - Sufficient time must be allowed for guided practice in applying the attributes to be changed and for reflecting on the experience. Simulations, exercises, games, and field assignments are useful tools. The time allocated to practice seems to distinguish between programs that teach about leadership and those that bring about behavioral modifications.

3. *LAI* has been shown to be sufficiently sensitive to reflecting changes in self-perceptions of attributes as a result of educational interventions. The instrument

should now be further refined, and norms and standards established, so that it can be used for individual diagnostic purposes.

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APPENDIX A

Program Description

LEADERSHIP DEVELOPMENT PROJECT

PROGRAM DESCRIPTION

For each of the following sections, please provide the information requested.

1. **Program Director:**____

   Date this description completed: ______________________________

2. **Title of the program:** ___________________________________

   ____

3. **Program objectives** (attributes): ______________________________

   ____

   ____

   ____

   ____

   ____

   ____

   ____

   ____

4. **Starting and ending dates of the program:** ______________ to __________

5. **Number of group meetings:** __________.

6. **Estimate of number of hours each student devoted to the program.**

   a. **Number of hours on-campus in class setting** (instructor led): __________

   b. **Number of hours the group spent off-campus and in the field** (e.g., field trips, group interviewing, and so on): __________

   c. **Number of hours spent on individual assignments** (e.g., homework, shadowing, internships, reading, interviewing, and so on): __________

   d. **Other** (please specify):

   ____________________________________ __________

   Total __________

7. **Consultants** (teachers, interns, supervisors, and so on) **involved in the program.**

Name	Title	Responsibility

8. **Provide bibliographic references for the materials used** (e.g., texts, readings, games, videotapes, and so on. Copies of bibliographies and materials are welcome.)

9. **Describe the significant in-class/workshop activities and the out-of-class activities used in the program. Indicate the *dates* each took place** (in sequence), **the *content and method(s) of the activity*, and the *objective(s)* intended to be achieved by each activity. Use extra pages as necessary.** (Attach course syllabi, agenda, assignments, and so on as appropriate.)

10. **Describe any procedures you used to evaluate the effectiveness of the program** (in addition to NCRVE evaluation efforts) **and indicate the results.**

APPENDIX B

Participant Description Form

LEADERSHIP DEVELOPMENT PROJECT

PARTICIPANT DESCRIPTION FORM

(To be completed by the program director)

Program Director: ____

Institution: ____

Please provide the following information about the students who were enrolled throughout the leadership development program you recently offered.

1. Number of participants______
2. Number of participants admitted to a doctoral program in vocational education_____
3. Number of participants admitted to a master's program in vocational education_____
4. Number of graduate students *not* in a degree program_____
5. Number of participants attending school: part-time_____ full-time_____
6. Average estimated age of participants_____
7. Number of participants who are employed in each of the following types of organizations:

_____Public/Private K-12 School (Administrator)

_____Public/Private K-12 School (Teacher)

_____Public/Private Postsecondary Institution (2 years and 4 years)

_____NonProfit/Public Sector (Government/State Agency)

_____Business and Industry

_____Health Care

_____(Number not employed)

8. Ethnic background of participants (Please indicate number for each category)

_____White

_____African American

_____American Indian or Alaskan Native

_____Hispanic

_____Asian/Pacific Islander

9. Number of participants by gender:

_____Male

_____Female

10. Number of participants who had had previous formal leadership development preparation or training ________

APPENDIX C

Post-Program Survey

LEADERSHIP DEVELOPMENT

POST-PROGRAM SURVEY

Institution: ____

PARTICIPANT

The purpose of this survey is to assess the effectiveness of the particular leadership development program in which you were recently involved. Please indicate your level of agreement with the following statements using the five-point scale: 5= Agree to 1= Disagree.

	Agree				Disagree
1. The objectives of this program were made clear at the beginning.	5	4	3	2	1
2. The program was well-organized.	5	4	3	2	1
3. The program was well-facilitated by the instructor(s).	5	4	3	2	1
4. The program's assignments were useful in helping understand the program's content.	5	4	3	2	1
5. The materials and readings used in this program increased the effectiveness of this program.	5	4	3	2	1
6. I learned things in this program that will help further develop my leadership capability.	5	4	3	2	1
7. As a result of participating in this program, I have increased confidence that I will be a more effective leader in the field.	5	4	3	2	1
8. More leadership development programs like the one I just completed should be made available.	5	4	3	2	1

9. Which major activities in the program were most effective and what impacts/effects did they have on you and/or the group? In responding, relate the nature of each activity to its outcome(s).

10. If this program were to be repeated, what changes would you suggest to increase its effectiveness?

Date: ____________________

APPENDIX D

Leader Attributes Inventory (LAI)

Revised 10/15/90

LEADER ATTRIBUTES INVENTORY

Retrospective Pretest, Self

J. Moss, H. Preskill, B.-C. Johansen

This inventory is an attempt to measure the extent to which you possessed certain leadership attributes *before* you participated in a leadership development activity.

Section I

Thirty-seven leadership attributes have been identified and are listed on this inventory. It is important to note that the statements provided for the attributes are intended to help clarify the meaning of the attributes and do not necessarily reflect a complete definition of the attribute.

For each of the attributes listed, please **FILL IN** the circle that best represents the extent to which the attribute described you prior to your participation in the leadership development activity. As with any questionnaire, **the validity of the results are dependent on the honesty of the responses made**. We urge you to critically reflect on each of the attributes and select the rating that best **described you prior to participating in the leadership development activity**. Your responses to this inventory will be kept confidential.

For questions 1-37, please use the following scale:

7. *About 100%* of the time this was an accurate description of me.

6. *About 90%* of the time this was an accurate description of me.

5. *About 80%* of the time this was an accurate description of me.

4. *About 70%* of the time this was an accurate description of me.

3. *About 60%* of the time this was an accurate description of me.

2. *About 50%* of the time this was an accurate description of me.

1. *About 40%* or less of the time this was an accurate description of me.

- Please Begin on the Next Page -

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Attributes	–40% or less	–50%	–60%	–70%	–80%	–90%	–100%
1. ***Energetic with stamina*** I approached my work with great energy and had the stamina to work long hours when necessary.	○	○	○	○	○	○	○
2. ***Insightful*** I reflected on the relationships among events and grasped the meaning of complex issues quickly.	○	○	○	○	○	○	○
3. ***Adaptable, open to change*** I encouraged and accepted suggestions and constructive criticism from my co-workers, and was willing to consider modifying my plans.	○	○	○	○	○	○	○
4. ***Visionary*** I looked to the future and created new ways in which the organization could prosper.	○	○	○	○	○	○	○
5. ***Tolerant of ambiguity and complexity*** I was comfortable handling vague and difficult situations where there was no simple answer or no prescribed method for proceeding.	○	○	○	○	○	○	○
6. ***Achievement-oriented*** I was committed to achieving my goals and strove to keep improving performance.	○	○	○	○	○	○	○
7. ***Accountable*** I held myself answerable for my work and was willing to admit my mistakes.	○	○	○	○	○	○	○
8. ***Assertive, initiating*** I readily expressed my opinion and introduced new ideas.	○	○	○	○	○	○	○
9. ***Confident, accepting of self*** I felt secure about my abilities and recognized my shortcomings.	○	○	○	○	○	○	○

Attributes	–40% or less	–50%	–60%	–70%	–80%	–90%	–100%
10. ***Willing to accept responsibility*** I was willing to assume higher level duties and functions within the organization.	○	○	○	○	○	○	○
11. ***Persistent*** I continued to act on my beliefs despite unexpected difficulties and opposition.	○	○	○	○	○	○	○
12. ***Enthusiastic, optimistic*** I thought positively, approached new tasks with excitement, and viewed challenges as opportunities.	○	○	○	○	○	○	○
13. ***Tolerant of frustration*** I was patient and remained calm even when things did not go as planned.	○	○	○	○	○	○	○
14. ***Dependable, reliable*** I could be counted on to follow through to get the job done.	○	○	○	○	○	○	○
15. ***Courageous, risk-taker*** I was willing to try out new ideas in spite of possible loss or failure.	○	○	○	○	○	○	○
16. ***Emotionally balanced*** I had a sense of humor and an even temperament even in stressful situations.	○	○	○	○	○	○	○
17. ***Committed to the common good*** I worked to benefit the entire organization, not just myself.	○	○	○	○	○	○	○
18. ***Personal integrity*** I was honest and practiced the values I espoused.	○	○	○	○	○	○	○
19. ***Intelligent with practical judgment*** I learned quickly, and knew how and when to apply my knowledge.	○	○	○	○	○	○	○

Attributes	–40% or less	–50%	–60%	–70%	–80%	–90%	–100%
20. ***Ethical*** I acted consistent with principles of fairness and right or good conduct that could stand the test of close public scrutiny.	○	○	○	○	○	○	○
21. ***Communication (listening, oral, written)*** I listened closely to people with whom I worked and was able to organize and clearly present information both orally and in writing.	○	○	○	○	○	○	○
22. ***Sensitivity, respect*** I genuinely cared about others' feelings and showed concern for people as individuals.	○	○	○	○	○	○	○
23. ***Motivating others*** I created an environment where people wanted to do their best.	○	○	○	○	○	○	○
24. ***Networking*** I developed cooperative relationships within and outside of the organization.	○	○	○	○	○	○	○
25. ***Planning*** In collaboration with others, I developed tactics and strategies for achieving organizational objectives.	○	○	○	○	○	○	○
26. ***Delegating*** I was comfortable assigning responsibility and authority.	○	○	○	○	○	○	○
27. ***Organizing*** I established effective and efficient procedures for getting work done in an orderly manner.	○	○	○	○	○	○	○
28. ***Team building*** I facilitated the development of cohesiveness and cooperation among the people with whom I worked.	○	○	○	○	○	○	○

Attributes	—40% or less	—50%	—60%	—70%	—80%	—90%	—100%
29. ***Coaching*** I helped people with whom I worked develop knowledge and skills for their work assignments.	○	○	○	○	○	○	○
30. ***Conflict management*** I brought conflict into the open and used it to arrive at constructive solutions.	○	○	○	○	○	○	○
31. ***Time management*** I scheduled my own work activities so that deadlines were met and work goals were accomplished in a timely manner.	○	○	○	○	○	○	○
32. ***Stress management*** I was able to deal with the tension of high pressure work situations.	○	○	○	○	○	○	○
33. ***Appropriate use of leadership styles*** I used a variety of approaches to influence and lead others.	○	○	○	○	○	○	○
34. ***Ideological beliefs are appropriate to the group*** I believed in and modeled the basic values of the organization.	○	○	○	○	○	○	○
35. ***Decision-making*** I made timely decisions that were in the best interest of the organization by analyzing all available information, distilling key points, and drawing relevant conclusions.	○	○	○	○	○	○	○
36. ***Problem-solving*** I effectively identified, analyzed, and resolved difficulties and uncertainties at work.	○	○	○	○	○	○	○

Attributes	--40% or less	--50%	--60%	--70%	--80%	--90%	--100%
37. ***Information gathering and managing*** I was able to identify, collect, organize, and analyze the essential information needed by my organization.	○	○	○	○	○	○	○

Section II

38. What are the last four digits of your Social Security number?

☐ ☐ ☐ ☐

39. Student status: ○ Full time ○ Part time

40. Pursuing the following degree: ○ BA/BS ○ Masters ○ Specialist ○ Doctorate ○ Post Doctorate

41. Gender: ○ Male ○ Female

42. Ethnic group (optional): ○ African American (Non-Hispanic Origin) ○ Hispanic ○ Asian or Pacific Islander ○ American Indian or Alaskan Native ○ White (Non-Hispanic Origin)

43. Years of experience as a school administrator: ○ None ○ 1-3 yrs ○ 4-6 yrs ○ 7-9 yrs ○ 10 yrs and over

44. Years of experience as a manager in nonschool settings: ○ None ○ 1-3 yrs ○ 4-6 yrs ○ 7-9 yrs ○ 10 yrs and over

45. Age: ○ 25 or less ○ 26-35 ○ 36-45 ○ 46-55 ○ 56 and over

46. Name of institution now attending:

____

[Directors Sheet Only] *Revised 10/08/90*

LEADER ATTRIBUTES INVENTORY

Self-Rating Form

J. Moss, H. Preskill, B.-C. Johansen

This inventory is an attempt to measure the extent to which you *currently* possess certain leadership attributes.

Section I

Thirty-seven leadership attributes have been identified and are listed on this inventory. It is important to note that the statements provided for the attributes are intended to help clarify the meaning of the attributes and do not necessarily reflect a complete definition of the attribute.

For each of the attributes listed, please **FILL IN** the circle that best represents the extent to which the attribute *currently* describes you. As with any questionnaire, **the validity of the results are dependent on the honesty of the responses made**. We urge you to critically reflect on each of the attributes and select the rating that best **describes you at this time**. Your responses to this inventory will be kept confidential.

For questions 1-37 please use the following scale:
7. *About 100%* of the time this is an accurate description of me.
6. *About 90%* of the time this is an accurate description of me.
5. *About 80%* of the time this is an accurate description of me.
4. *About 70%* of the time this is an accurate description of me.
3. *About 60%* of the time this is an accurate description of me.
2. *About 50%* of the time this is an accurate description of me.
1. *About 40%* of the time this is an accurate description of me.

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APPENDIX E

Six-Month Behavior and Performance Survey

LEADERSHIP DEVELOPMENT PROJECT

SIX-MONTH BEHAVIOR AND PERFORMANCE SURVEY

1. **Institution:** ______________________________

2. What are the last four digits of your social security number?

☐☐☐☐

3. Indicate your employment status since completing the leadership development program. (Check those that apply.)

Part-time employment at the institution ☐

Part-time employment *not* at the institution ☐

Full-time employment at the institution ☐

Full-time employment *not* at the institution ☐

Not Employed ☐

Directions

About six months have now passed since you completed a leadership development program at your institution. This survey of former participants is intended to find out **what impact you believe the program has had on your leadership behavior and performance.** Please think back over the last six months and respond to the following questions as completely and honestly as your memory allows.

4. As a result of the leadership development program, have you engaged in a greater number of leadership activities during the last six months? Include both professional and other leadership activities (e.g., community involvement.)

☐ Yes ☐ No ☐ Not Sure

5. If you answered "Yes" to question 4, please complete this question. Otherwise, go on to question 6. Briefly describe the *additional* kinds of professional and/or other leadership activities in which you have been involved.

6. Which of the leader attributes developed by the program have been most useful to you? (Check all those that apply.)

☐ 1. Energetic with stamina
☐ 2. Insightful
☐ 3. Adaptable, open to change
☐ 4. Visionary
☐ 5. Tolerant of ambiguity and complexity
☐ 6. Achievement-oriented
☐ 7. Accountable
☐ 8. Assertive, initiating
☐ 9. Confident, accepting of self
☐ 10. Willing to accept responsibility
☐ 11. Persistent
☐ 12. Enthusiastic, optimistic
☐ 13. Tolerant of frustration
☐ 14. Dependable, reliable
☐ 15. Courageous, risk-taker
☐ 16. Emotionally balanced
☐ 17. Committed to the common good
☐ 18. Personal integrity
☐ 19. Intelligent with practical judgment
☐ 20. Ethical
☐ 21. Communication (listening, oral, written)
☐ 22. Sensitivity, respect
☐ 23. Motivating others
☐ 24. Networking
☐ 25. Planning
☐ 26. Delegating
☐ 27. Organizing
☐ 28. Team building
☐ 29. Coaching
☐ 30. Conflict management
☐ 31. Time management
☐ 32. Stress management
☐ 33. Appropriate use of leadership styles
☐ 34. Ideological beliefs are appropriate to the group
☐ 35. Decision-making
☐ 36. Problem-solving
☐ 37. Information gathering and managing

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7. If you have engaged in *any* leadership activities since completing the program, please indicate the extent to which the program contributed to your success in accomplishing each of the following six leadership tasks.

	Not Sure	None	Little	A Fair Amount	A Great Deal
(a) Inspiring a shared vision	○	○	○	○	○
(b) Achieving unity in the group and motivating others	○	○	○	○	○
(c) Implementing change and empowering others	○	○	○	○	○
(d) Exerting influence outside of the group	○	○	○	○	○
(e) Establishing a good learning environment	○	○	○	○	○
(f) Satisfying the professional needs of group members	○	○	○	○	○

8. Did the leadership development program motivate you to undertake any additional leadership training activities?

☐ No ☐ Yes

9. If you answered "Yes" to question 8,

(a) Are the training activities consistent with a self-development plan formulated during the leadership development program?

☐ Yes ☐ No ☐ No plan was formulated

(b) Are the activities,

☐ Completed ☐ Underway ☐ Not Yet Begun

(c) Please describe briefly what training activities were completed or are underway.

Thank you for your help. Please return this questionnaire to the Director of your leadership development program.

APPENDIX F

Evaluation Summary:
Colorado State University (Fall 1990)

EVALUATION SUMMARY

LEADERSHIP DEVELOPMENT SEMINAR
Fall 1990 Course

Charles F. Porter, Director
Colorado State University

I. DESCRIPTION

A. Program

1. *Format:*

   The program was offered as a two-credit semester course (Aug. 29 - Oct. 31, 1990). It included thirty hours of on-campus activities plus fifteen hours of individual assignments. Two class sections of seventeen students each were taught concurrently using identical activities and instructional personnel.

2. *Program Objectives (attributes):*

   Eleven attributes were targeted for instructional objectives (targeted attributes): (a) insightful; (b) adaptable, open to change; (c) visionary (creative, original); (d) achievement-oriented; (e) willing to accept responsibility; (f) confident, accepting of self; (g) committed to the common good; (h) communication; (i) sensitivity, respect (tactful); (j) motivating others; and (k) team building.

3. *Significant Activities:*

   (a) Students took a 130-question computer-based test (Acumen) designed to give them (i) a graphic profile of their management style compared to a national norm; (ii) an executive printout of their strengths and weaknesses, and (iii) a full ten-page report detailing their strengths and counterproductive tendencies in management situations. Later, students had an opportunity to develop an action plan for self-improvement designed to look at their strengths in twelve areas focusing on tasks and relationships. The objectives of this activity were to increase the attributes of achievement-oriented; confident, accepting of self; and insightful.

   (b) Students spent three hours one afternoon on the "Ropes Course," which is designed to sensitize students to "team building" and teach them to take some risks and challenges. The course is also designed to help students develop creativity and to accept responsibility.

(c) Students also took diagnostic tests: Meyers-Briggs, Leadership Practices Instrument, Brain Map, Values Assessment, and Dolphin Strategy.

(d) Students were required to develop a "vision statement." The attributes which were to be affected were communication, motivating others, insightful, and visionary.

(e) Students' "personal action plans" for improvement were designed to increase all eleven objectives, but in particular insightful; achievement-oriented; willing to accept responsibility; confident, acceptance of self; commitment to the common good; and communication.

(f) Other class activities and assignments (e.g., readings and presentations) were designed to touch on all eleven attributes.

(g) Schedule of activities:

Aug. 29: Welcome, get acquainted, syllabus, "what is leadership?"
Sept. 05: Leadership theories, computer time and demonstration, vision building
Sept. 12: Situational leadership, Meyers-Briggs
Sept. 19: Discuss leadership thinking styles (turn in personal graph)
Sept. 26: Ropes course, team building
Oct. 03: Leadership Practices Inventory, introduction to values, Brain and Dolphin instruments
Oct. 10: Dudley Lynch, President of Brain Technologies
Oct. 17: Ellie Gilfoyle, Dean of Applied Human Sciences
Oct. 25: Leadership presentations and discussion, share individual leadership styles
Oct. 31
or
Nov. 07: Wrap up leadership styles, presentations, evaluation

B. Participants (n=34)*

Student status: 20 Full-time, 14 Part-time (Total of 2 sections)
Degree pursuing: 1 B.A., 2 Masters, 31 Doctorate
Gender: 18 Male, 16 Female
Ethnic group: 2 African American, 4 Hispanic, 1 Asian, 1 Native American, 26 White
School administrative experience: 7 had 0 years, 10 had 1-3 years, 4 had 4-6 years, 2 had 7-9 years, 10 had 10 or more years

Age: 1 was 25 or less, 7 were 26-35, 17 were 36-45, 7 were 46-55, 2 were 56 or more.

Current employment: 12 were K-12 school administrators, 4 were 10-12 grade teachers, 13 were postsecondary teachers/administrators, 5 were in other roles.

*Items which do not add up to thirty-four are missing data.

II. OUTCOMES: IMMEDIATELY AFTER INSTRUCTION

A. Satisfaction

1. Students thought the course was well-delivered (x = 4.5, s = .63 on a 5-point scale).
2. Responses to open-ended items on the "satisfaction" instrument confirmed that students appreciated the instructor and the way the course was delivered.
3. Students and the instructor thought the course was very valuable (x = 4.6, S = .79 on a 5-point scale).

B. Perceived Change in Leader Attributes

1. Fifteen of the thirty-seven attributes showed statistically significant increases. The attributes that increased most, in order of magnitude on a one-hundred percentage point scale were conflict management (10.1 percentage points); networking (8.3 percentage points); tolerant of frustration (7.7 percentage points); appropriate use of leadership styles (7.7 percentage points); confident, accepting of self (7.4 percentage points); and assertive, initiating (7.4 percentage points).
2. While the number of attributes that increased demonstrates an important overall, positive effect, the magnitude of the increases are moderate (e.g., 3-10 percentage points on a 100-percentage point scale).
3. Of the eleven attributes targeted for improvement by the leadership program, four showed statistically significant increases: adaptable, open to change; confident, accepting of self; communication; and motivating others.
4. Table 1 shows the attributes by whether or not they increased significantly ($p<.05$), and whether or not they were a targeted attribute (instructional objective) of the program.

Table 1

Change in Perception of Leader Attributes Resulting from Instruction

Colorado State University (n=34)

Objectives Effect	Targeted Attributes	Non-Targeted Attributes
Statistically Significant Change ($p \leq .05$)	Adaptable, open to change Confident, accepting of self Communication Motivating others	Tolerant of ambiguity and complexity Assertive, initiating Tolerant of frustration Courageous, risk-taker Networking Planning Conflict management (Personal integrity)* Time management Appropriate use of leadership styles Problem solving Information gathering and managing
No Statistically Significant Change	Insightful Visionary Achievement-oriented Willing to accept responsibility Committed to the common good Sensitivity, respect Team building	(Remainder of the 37 attributes)

*Decrease due to application of inflationary estimate.

C. Linking Outcomes to Activities

1. Table 2 summarizes the views of students and the project director about (a) the program activities considered most effective, (b) why they were thought to be effective, (c) the leader attributes which students felt were impacted by the activities, (d) whether or not the attributes believed to be impacted were targeted (instructional objectives) or not, and (e) the probability that the increases in attribute scores on the *LAI* were due to chance.
2. Five activities were judged to be most effective by the participants and were linked to ten attributes. Six of the ten attributes were targeted instructional objectives. Four of the six targeted attributes increased significantly on the *LAI*. These judgments and linkages were independently supported by the director.
3. Table 2 also includes four non-targeted attributes which were linked to program effectiveness, and showed significant increases on the *LAI*.

D. Suggestions for Improvement

1. The students and the instructor agreed that the visionary exercises were not valuable. The instructor felt that there were not enough good exercises available. The students believed that learning to become a good visionary requires a level of motivation not present in an artificial (class) situation.
2. Students had mixed feelings about the value of interviewing leaders in terms of the benefits and insights gained in relation to the time invested.
3. Both students and the director had mixed feelings about the value of using guest speakers (or perhaps feelings were mixed about the particular three speakers used in the program).
4. Many students desired an opportunity for more class interaction and student-centered activities. A retreat setting was suggested.
5. Students and the instructor believed it would be desirable to have peers or subordinates assess participants (as well as the self-assessments). This "external" view would test the reality of participants' self-perceptions.
6. Both students and the instructor felt the program should be lengthened and made a three-credit course. This would permit adding more about leadership theories, including simulations to improve leader attributes, and increasing opportunities for class interaction and leadership activities.

Table 2
Linking Effective Activities to Changes in Leader Attributes
Colorado State University - Fall (November) 1990

	Seen as effective by students		Seen as effective by project dir.			Attribute Affected (linked)		
Activity (Judged effective)	Focus Group	Satis. Inst.	Inter view	Satis. Inst	Reason for effectiveness (As seen by students)	As seen by students	Tested P-value	Targeted by instructor
Self-assessment test battery (Acumen, Meyers-Briggs, Leadership Practices Inventory, "Brain" tests, Values assessment, "Breakthrough" instrument, Dolphin tests)	X	X	X	X	Learning about self, seeing patterns emerge from the battery which are confirmatory. Serves to point out faults in self and increases sensitivity to others. Helped convince students that leadership can be learned (In this case, probably gave too many tests).	Appropriate use of leadership styles Confident, accepting of self Sensitivity, respect Adaptable, open to change	.001* .002** .622 .002**	Y Y Y Y
Develop self-improvement plan	X		X	X	Activity was tied closely to use of Acumen.	Planning	.046*	N
Interaction within group	X	X		X	Participants learned from each other; shared experiences of a diverse and talented group.	Communication Networking Team building	.038* .001** .268	Y N Y
Ropes course (3 hours)	X	X	?	X	Brought group together; showed it is easier to take risks with team effort and support; challenging.	Team building Courageous, risk-taker	.268 .004**	Y N
Readings, reporting (Assignments)		X		X	Valued opportunity to individualize readings; variety of ideas presented and approaches used.	Appropriate use of leadership styles Communication	.001** .038*	N Y

* Significant at .05 level.
** Significant at .01 level.

III. OUTCOMES: SIX-MONTH FOLLOW-UP

A. Practicing Leadership

1. Six months after the conclusion of the program an attempt was made to obtain information about the leadership behavior and performance of former program participants. Twenty of the thirty-four former participants responded. Of the twenty respondents, eleven report that, as a result of the program, they have

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engaged in a greater number of leadership activities than before they entered the program.

2. Eight of eleven respondents who worked at institutions other than Colorado State University reported an increase in their leadership activities, while only three of nine former participants who remained at Colorado State (presumably as graduate students) did so.
3. The types of additional leadership activities identified included (a) job-related (61%); (b) new professional roles such as promotions (22%); (c) community involvement (13%); and (d) social activities (4%).

B. Usefulness of Leader Attributes

1. All of the thirty-seven leader attributes were used by at least twenty-five percent of the twenty responding former participants of the leadership program.
2. The attributes reported by respondents to have been used most frequently were (a) insightful (70%); (b) adaptable, open to change (65%); (c) visionary (60%); (d) team building (60%); (e) confident, accepting of self (55%); (f) communication (55%); (g) motivating others (55%); (h) enthusiastic (50%); (i) appropriate use of leadership styles (50%); (j) sensitivity, respect (45%); (k) networking (45%); (l) courageous, risk-taking (45%); (m) committed to the common good (45%); (n) information gathering and managing (45%); and (o) personal integrity (45%).
3. Of the above twelve leader attributes, six had also been identified by program participants immediately after instruction as having been impacted by effective program activities, *and* had shown statistically significant increases in *LAI* scores. These attributes are adaptable, open to change; confident, accepting of self; communication; appropriate use of leadership styles; networking; and courageous, risk-taking. Three other leader attributes of the twelve noted in item 2, above, were either "linked" to effective activities *or* had shown significant increases on the *LAI:* team building; motivating others; and sensitivity, respect.

C. Leadership Success

Respondents reported the extent to which they believed the program contributes to their success in accomplishing each of six leadership tasks. A rating scale of none (1), little (2), fair amount (3), and great deal (4) was used. The results were as follows:

Leadership Task	x	s
Implementing change and empowering others	3.1	.76
Achieving group unity and motivating others	3.0	.63
Satisfying the professional needs of group members	2.9	.81
Inspiring a shared vision	2.7	.75
Establishing a good learning environment	2.6	.71
Exerting influence outside of the group	2.4	.84
Mean	2.8	.75

D. Additional Leadership Training

1. Nine of the twenty respondents were motivated by the leadership program to undertake some additional leadership training during the six-month period.
2. Eighty-nine percent of their training activities were reported to be consistent with a self-development plan created during the leadership program.
3. Forty-three percent of the additional training activities were completed at the time of reporting; fifty-seven percent were still underway.
4. The types of leadership training reported were as follows: courses and workshops (5), internship (1), training mentors (1), program of reading (2).

IV. OUTCOMES: INSTITUTIONAL IMPACT

Six months after the conclusion of the program, the director of the project reported that (1) the department's regular two-credit semester course in leadership has been increased to a three-credit course; and (2) graduate students are beginning to take additional leadership-related courses in other parts of the university.

V. COST

	Direct Cost	Indirect Cost (45%)	Total Cost
A. Total cost of program (developing and conducting)	$11,403	$5,131	$16,534
B. Cost of conducting the program (repeating the program)	10,098	4,544	14,642
C. Average cost per student of conducting the program (n=34)	297	134	431
D. Cost of adding an additional student	91	41	132
E. Cost per hour of instruction (conducting the program)	337	151	488
F. Cost per participant hour of instruction (conducting the program)	10	4	14

APPENDIX G

Evaluation Summary:
Colorado State University (Summer 1991)

EVALUATION SUMMARY

LEADERSHIP DEVELOPMENT SEMINAR
Summer 1991

Charles F. Porter, Director
Colorado State University

I. DESCRIPTION

A. Program

1. *Format:*

   This program was offered as a two-credit semester course taught over a ten-day period, July 8 to July 19, during the Summer of 1991. It included thirty hours of on-campus activities plus about fifteen hours of individual assignments. The program may be compared with the Fall 1990 leadership development offering at Colorado State University which was also two semester credits, but was delivered over a ten-week period.

2. *Program Objectives (attributes):*

   The Summer 1991 program had the same eleven instructional objectives (targeted attributes) as the Fall 1990 program. They were as follows: (a) insightful; (b) adaptable, open to change; (c) visionary (creative, original); (d) achievement-oriented; (e) willing to accept responsibility; (f) confident, accepting of self; (g) committed to the common good; (h) communication; (i) sensitivity, respect (tactful); (j) motivating others; (k) team building.

3. *Significant Activities:*

   The activities in which the students engaged during the Summer 1991 offering was the same as during the Fall 1990 program, with the following three exceptions: (a) students did *not* do the "Ropes" course in the Summer; (b) the summer students completed a book report *or* a report of three articles, while the students in the Fall did both; (c) the Summer students did *not* present oral reports to the class of the results of temperament and leadership styles self-assessment instruments.

B. Participants (n=22)*

Student status: 10 Full-time, 9 Part-time
Degree pursuing: 1 Masters, 17 Doctorate
Gender: 12 Male, 6 Female
Ethnic group: 1 Hispanic, 18 White
School administrative experience: 9 had 0 years, 6 had 1-3 years, 1 had 4-6 years, 1 had 7-9 years, 2 had 10 or more years
Experience as a manager in a nonschool setting: 6 had 0 years, 4 had 1-3 years, 4 had 4-6 years, 4 had 10 or more years
Age: 2 were 26-35 years, 10 were 36-45 years, 6 were 46-55 years
Current employment: 4 were public/private K-12 (administrators), 1 was public/private K-12 (teacher), 9 were public/private postsecondary, 4 were nonprofit/public sector, 4 were business and industry.
*Numbers which do not add to twenty-two are missing data.

Some differences between the participants in this Summer 1991 and the Fall 1990 group are evident: (1) there were twenty-two students in one class section in the summer, but in the Fall, the class was divided into two sections of seventeen students each, (2) the Fall class had a greater proportion of full-time students, (3) the Fall class had a greater proportion of females, (4) the Fall class had a larger proportion of students with extensive school administrative experience, and (5) the Fall class had a larger proportion of participants with extensive management experience in nonschool settings.

II. OUTCOMES: IMMEDIATELY AFTER INSTRUCTION

A. Satisfaction

1. Data from students was not collected. The project director, however, reported that "This was a good group. The instruction went well and the students enjoyed the course."

B. Perceived Changes in Leader Attributes

1. Seven of the thirty-seven leader attributes had statistically significant increases on the *LAI*. The attributes that increased most, in order of magnitude on a one-hundred percentage point scale, were tolerant of frustration (9.1 percentage points); tolerant of ambiguity and complexity (7.4 percentage points); and

adaptable, open to change (6.8 percentage points). The remaining four attributes that increased significantly are shown in Table 1.

2. Of the eleven leader attributes targeted for improvement (instructional objectives), only one (adaptable, open to change) showed a statistically significant increase in *LAI* scores (see Table 1).

Table 1
Change in Perception of Leader Attributes Resulting from Instruction
Colorado State University
Summer Course (n=22)

Objectives Effect	Targeted Attributes	Non-Targeted Attributes
Statistically Significant Change ($p \leq .05$)	*Adaptable, open to change	*Tolerant of ambiguity and complexity *Tolerant of frustration *Planning Delegating *Conflict management Stress management
No Statistically Significant Change	Insightful Visionary Achievement-oriented Willing to accept responsibility Confident, accepting of self Committed to the common good Communication Sensitivity, respect Motivating others Team building	(Remainder of the 37 attributes)

*Also significant in the Fall 1990 program.

C. Linking Outcomes to Activities

This data was not collected from students.

III. OUTCOMES: SIX-MONTH FOLLOW-UP

This data was not collected from students.

IV. OUTCOMES: INSTRUCTIONAL IMPACT

See the summary of the Fall 1990 course.

V. COST

	Direct Cost	Indirect Cost (45%)	Total Cost
A. Total cost of program (developing and conducting)	$7,500*	$3,375	$10,875
B. Costs of conducting the program (repeating the program)	7,500	3,375	10,875
C. Average cost per student of conducting the program (n=22)	341	153	494
D. Cost of adding an additional student	90	41	131
E. Cost per hour of instruction (conducting the program)	250	113	362
F. Cost per participant hour of instruction (conducting the program)	11	5	16

*No development cost; this is the second offering.

VI. COMPARING THE FALL 1990 AND SUMMER 1991 PROGRAMS

1. The Summer 1991 program was delivered within a much shorter, more intensive timeframe than the Fall 1990 program, and some activities were left out of the summer program.
2. There were a greater number of participants in the class during the Summer, and some of their demographic characteristics (e.g., student status, gender, and management experience) differed from the Fall.
3. Instruction in the two programs resulted in the following outcomes:
    - (a) The *LAI* scores of seven attributes were significantly increased ($p \leq .05$) by the summer program, as opposed to fifteen in the Fall, and the magnitude of the gain scores were lower in the Summer.
    - (b) There was, however, some consistency in the kinds of attributes that improved significantly: five of the seven attributes that were increased significantly by the Summer program were also increased significantly by the Fall program.
    - (c) Only one targeted attribute was significantly improved as a result of the Summer program, while four were improved by the Fall program.

APPENDIX H

Evaluation Summary:
Indiana State University

EVALUATION SUMMARY

DEVELOPING LEADERS IN VOCATIONAL EDUCATION

A.R. Putnam, Director
Indiana State University

I. DESCRIPTION

A. Program

1. *Format:*

   The program was offered as ITE 892, Field Research Project, a three-credit course conducted during the Spring semester of 1991. Students engaged in sixty-four hours of activities; some of which were held off campus.

2. *Program Objectives (attributes):*

   The following twelve leader attributes were designated as instructional objectives: (a) insightful, (b) visionary, (c) tolerant of ambiguity and complexity, (d) communication, (e) networking, (f) planning, (g) organizing, (h) conflict management, (i) appropriate use of leadership styles, (j) decision-making, (k) problem-solving, and (l) information gathering and managing.

3. *Significant Activities:*

   (a) A seminar series consisting of eight, two-hour sessions was held. The four topics covered (two sessions per topic) were as follows: (i) psychology of leadership—understanding yourself and others; (ii) leadership styles; (iii) leadership communication and motivating others; and (iv) conflict, change, and stress management. Students also prepared papers about each topic showing how the content might be applied.

   (b) Two visits were made. The first was a day-long visit with state vocational leaders and legislators at the state capitol to become familiar with state and local issues in vocational education. The second visit was to the National Policy Seminar of the American Vocational Association in Washington, DC to meet with legislators and Department of Education and Department of Labor personnel, and to investigate local vocational education programs in the Washington, DC area. This visit lasted five days.

(c) After returning from the travel visits, students acted as consultants to or presenters at other university courses, Advisory Council meetings, and community and university forums.

(d) A wrap-up and evaluation session was held.

B. Participants (n=5)

Student status: 5 Full-time
Degree pursuing: 2 Masters, 3 Doctorate
Gender: 3 Male, 2 Female
Ethnic group: 5 White
School administrative experience: 5 had 0 years
Experience as a manager in a nonschool setting: 1 had 1-3 years, 2 had 4-6 years, 1 had 7-9 years, 1 had 10 or more years
Age: 1 was 26-35 years, 3 were 36-45 years, 1 was 46-55 years

II. OUTCOMES: IMMEDIATELY AFTER INSTRUCTION

A. Satisfaction

1. Students were very satisfied with the way the course was organized and facilitated (x=4.7; S=.49 on a 5-point scale).
2. Students were unanimous in giving the course the highest possible rating (x=5.0) for helping them develop their leader attributes and improving their effectiveness as leaders.

B. Perceived Change in Leader Attributes

1. Given the small number of students participating in the program (n=5), no perceived increases in leader attributes were statistically significant ($p \leq .05$). However, four of the thirty-seven leader attributes gained 15.6 - 18.0 or more percentage points; one attribute increased between 11.6 - 15.5 percentage points; eight attributes gained 7.6 - 11.5 percentage points; eleven attributes increased 3.6 - 7.5 percentage points; and the remaining thirteen attributes gained 3.5 or less percentage points. This distribution of gains compares favorably with almost all of the other leadership development projects.
2. Table 1 shows the targeted attributes (those that comprised the program's instructional objectives) and the non-targeted attributes with their respective gain scores on the *LAI*. Note that four of the targeted leader attributes

increased 7.6 or more percentage points. The mean gain score of all twelve targeted attributes was 7.2. This may be compared with the mean gain of non-targeted attributes of 5.4 percentage points.

Table 1
Change in Perception of Leader Attributes Resulting from the Program
Indiana State University (n=5)

Objectives Effect	Targeted Attributes	Non-Targeted Attributes
Increased 11.6 - 18.0 percentage points	Visionary Tolerant of ambiguity and complexity Appropriate use of leadership styles	Assertive, initiating Tolerant of frustration
Increased 7.6 - 11.5 percentage points	Communication (listening, oral, written)	Adaptable, open to change Confident, accepting of self Emotionally balanced Delegating Team building Stress management Ideological beliefs appropriate to the group
Increased 0 - 7.5 percentage points	Insightful Networking Planning Organizing Conflict management Decision-making Problem-solving Information gathering and managing	(Remainder of the 37 attributes)

C. Linking Outcomes to Attributes

1. Table 2 summarizes the views of students and the project director about (a) the program activities considered most effective, (b) why they were thought to be effective, (c) the leader attributes which students felt were impacted (linked) by the activities, (d) whether or not the attributes believed to be impacted were targeted (instruction objective), and (e) the percentage point gains on the *LAI*.

2. Table 2 shows the actual percentage point gains on the *LAI* for each linked attribute in order to compare the impressions of students with the actual point gains on the *LAI*. Note that three of the twelve targeted attributes (communication, appropriate use of leadership styles, and visionary) were linked directly to activities by the students; that is, students said the attributes were affected by the activities. Also note that the *LAI* gain scores on these three linked and targeted attributes were reasonably high (8.0, 12.0, and 16.0 percentage points, respectively), indicating a consistency between percentage gain scores on the *LAI* and the expressed views of students.
3. Effective activities were also linked to the following three attributes that were non-targeted attributes: (a) confident, accepting of self; (b) stress management; and (c) motivating others. These three non-targeted attributes had percentage point gains of 8.0, 10.0, and 2.0 respectively.

Table 2
Linking Effective Activities to Change in Leader Attributes
Indiana State University

Activity (Judged effective)	Seen as effective by students	Seen as effective by project director	Reasons for effectiveness (As seen by students)	Attribute Affected (Linked)		
				As seen by students	Percentage Point Gains*	Targeted by Instructors
AVA National Policy Seminar and Trip to State Capitol	X X	X X	Identified attributes and styles of leaders. Became familiar with issues and range of ideas for the future. Provided models for making career plans.	Appropriate use of leadership styles Visionary	12.0 16.0	Y Y
Consulting with and reporting to other classes	X		Forced crystallization of the information gained through other activities.	Communication	8.0	Y
Seminars (and readings)	X	X	Taking the *LAI* helped in self-assessment. Gained knowledge about selected leader attributes.	Confident, accepting of self Stress management Motivating others Appropriate use of leadership styles	8.0 10.0 2.0 12.0	N N N Y

*Because the number of students in the project was small (n=5), percentage point gain scores on the *LAI* are presented in place of probability values.

D. Suggestions for Improvement

Students felt that it would be desirable to increase the length of the course. This would permit (1) longer interactions with leaders in the field, (2) more attributes to be discussed, and (3) more student interactions (group dynamics) aimed at developing specific attributes. No suggestions were made for reducing the time devoted to any of the activities in which students had engaged.

III. OUTCOMES: SIX-MONTH FOLLOW-UP

A. Practicing Leadership

1. Six-months after the conclusion of the program, information was obtained about the leadership behavior and performance of all five of the former program participants. Four of the five reported that, as a result of the program, they had engaged in a greater number of leadership activities than before they entered the program.
2. All of the former program participants were employed part-time; one held a job outside of the university, two held university jobs, and two held jobs at and outside of the university.
3. The types of additional leadership activities identified included (a) job-related (25%); (b) community involvement (25%); and (c) social activities (50%).

B. Usefulness of Leader Attributes

1. All but two attributes (accountable and coaching) were used by twenty to eighty percent of the five former participants.
2. The attributes reported to have been used most frequently were (a) team building (80%); (b) appropriate use of leadership styles (80%); (c) problem-solving (80%); (d) insightful (60%); (e) adaptable, open to change, (60%); (f) visionary (60%); (g) tolerant of ambiguity and complexity (60%); (h) assertive, initiating (60%); (i) confident, accepting of self (60%); (j) willing to accept responsibility (60%); (k) communication (60%); (l) planning (60%); (m) stress management (60%); (n) decision-making (60%); and (o) information gathering and managing.
3. Of the attributes used by two or more of the five program participants, five had gained 7.6 or more percentage points on the *LAI* as a result of instruction *and* had been identified by participants immediately after instruction as having been impacted by effective program activities. These attributes are

(a) appropriate use of leadership styles; (b) visionary; (c) confident, accepting of self; (d) communication; and (e) stress management. Seven other leadership attributes had been used by two or more participants and had *either* increased 7.6 percentage points on the *LAI or* had been linked to effective activities—(a) team building; (b) adaptable, open to change; (c) tolerant of ambiguity and complexity; (d) assertive, initiating; (e) tolerant of frustration; (f) motivating others; and (g) ideological beliefs appropriate to the group.

C. Leadership Success

Respondents reported the extent to which they believed the program had contributed to their success in accomplishing each of six leadership tasks. A rating scale of none (1), little (2), fair amount (3), and great deal (4) was used. The results were as follows:

Leadership Task	x	s
Implementing change and empowering others	3.0	.00
Achieving group unity and motivating others	3.0	.00
Satisfying the professional needs of group members	2.4	.89
Inspiring a shared vision	2.8	.50
Establishing a good learning environment	3.0	.71
Exerting influence outside of the group	2.3	.50
Mean	2.8	.43

D. Additional Leadership Training

None of the five former participants had completed or were currently engaged in additional leadership training activities at the end of the six-month period.

IV. OUTCOMES: INSTITUTIONAL IMPACT

Six months after the conclusion of the program, the director of the project reported that (1) with the graduate school's approval, an institution-wide leadership study has been initiated; (2) a new leadership course is being taught this year (delivered via television); and (3) students have been attracted to the department as a result of the networking done by the participants of the leadership project.

V. COST

	Direct Cost	Indirect Cost (29%)	Total Cost
A. Total cost of program (developing and conducting)	—	—	—
B. Costs of conducting the program (repeating the program)	$21,889	$6,326	$28,215
C. Average cost per student of conducting the program (n=5)	4,378	1,265	5,643
D. Cost of adding an additional student	1,023	296	1,319
E. Cost per hour of instruction (conducting the program)	342	99	441
F. Cost per participant hour of instruction (conducting the program)	68	20	88

APPENDIX I

Evaluation Summary:
Iowa State University

EVALUATION SUMMARY

DEVELOPMENT OF AN INSTRUCTIONAL MODEL FOR VOCATIONAL EDUCATION PH.D. STUDENTS TO STRENGTHEN BASIC PROFESSIONAL LEADER ATTRIBUTES

Donald J. McKay & Richard I. Carter, Co-Directors
Iowa State University

I. DESCRIPTION

A. Program

1. *Format:*

   This program was offered cooperatively by the Departments of Agricultural Education, Family and Consumer Studies, and Industrial Education and Technology. Each of the departments used one of its own course titles to award three graduate-level semester hour credits for the program. Instruction began on January 9, 1991 and ended May 19, 1991.

2. *Program Objectives (attributes):*

   The program focused particularly on the development of the following four leader attributes: (a) courageous, risk-taker; (b) networking; (c) team building; and (d) coaching. In addition, several other attributes were targeted and anticipated to change. These include confident, accepting of self; willing to accept responsibility; enthusiastic, optimistic; dependable, reliable; planning; delegating; organizing; decision-making; and problem-solving.

3. *Significant Activities:*

   (a) Faculty conducted eight hours of seminars to develop conceptions about the four leader attributes upon which the program was focused. Audiovisual, group problem-solving, simulation, and role play techniques were utilized.

   (b) Each student spent two days shadowing a vocational leader in the state.

   (c) Four teams, each composed of four students, developed two-hour long instructional modules. Each team created a module about one of the four specifically targeted leader attributes: (i) courageous, risk-taker; (ii) networking; (iii) team building; and (iv) coaching.

   (d) Inservice workshops were then held for teachers and administrators at four locations in the state. Each workshop was eight hours in length and consisted of presentations by students about the four leader attributes. Every student was involved in making a presentation at two of the four locations.

(e) A final summary-evaluation seminar (four hours) was held to share experiences.

B. Participants (n=16)*

Student status: 12 Full-time, 4 Part-time
Degree pursuing: 7 Masters, 9 Doctorate
Gender: 12 Male, 4 Female
Ethnic group: 12 White, 1 Hispanic
School administrative experience: 9 had 0 years, 6 had 1-3 years, 1 had 7-9 years
Experience as a manager in a nonschool setting: 7 had 0 years, 2 had 1-3 years, 1 had 7-9 years, 3 had 10 or more years
Age: 8 were 26-35 years, 7 were 36-45 years, 1 was 46-55 years

* Numbers which do not add to sixteen are missing data.

II. OUTCOMES: IMMEDIATELY AFTER INSTRUCTION:

A. Satisfaction

1. Students thought the course was well-delivered (x=4.4, S=.70 on a 5-point scale).
2. Students believed that the course was extremely valuable to them (x=4.9, S=.25 on a 5-point scale). In fact, all of the students interviewed said that they would like to repeat the experience the next semester even if it resulted in no credit toward their degree completion.
3. The co-directors of the program have received calls from administrators in the state requesting that additional inservice workshops about leadership be offered.
4. A concomitant outcome expressed by both students and co-directors was the benefit gained from having students from the three vocational departments working together (for the first time).

B. Perceived Change in Leader Attributes

1. Students perceived that ten of the thirty-seven leader attributes had increased significantly ($P \leq .05$) on the *LAI* as a result of the program.

2. As shown in Table 1, two of the thirteen targeted attributes (instructional objectives) were improved significantly (P≤ .05) as follows: coaching (8.4 percentage points) and courageous, risk-taker (7.1 percentage points). The other eight non-targeted leader attributes which gained significantly on the *LAI* could very well have been affected by the team effort required to develop and present the inservice workshops. Their gain averaged 8.1 percentage points, ranging from 15.8 percentage points (motivating others) to 3.8 percentage points (achievement-oriented). These percent gains (on a 100-percentage point scale), although statistically significant, are modest in terms of what one might have hoped for from the program.

Table 1

Change in Perception of Leader Attributes Resulting from Instruction

Iowa State University (n=16)

Objectives Effect	Targeted Attributes	Non-Targeted Attributes
Statistically Significant Change (p≤.05)	Coaching Courageous, risk-taker	Insightful Adaptable, open to change Tolerant of ambiguity and complexity Achievement-oriented Assertive, initiating Motivating others Conflict management Ideological beliefs appropriate to group
No Statistically Significant Change	Networking Team building Confident, accepting of self Willing to accept responsibility Enthusiastic, optimistic Dependable, reliable Planning Delegating Organizing Decision-making Problem-solving	(Remainder of the 37 attributes)

C. Linking Outcomes to Activities

1. Table 2 presents a summary of (a) the activities students and co-directors felt most effective, (b) why they were thought to be effective, (c) the leader attributes which students felt were impacted by the activities, (d) whether the attributes believed to be impacted were targeted (instructional objectives) or not, and (e) the probability that the increase in attribute scores on the *LAI* were due to chance.
2. It is evident that students perceived the activities of the program to be linked to (have had an impact on) the targeted attributes (instructional objectives) of the program. However, this perception by students is *not* verified by the change in attribute scores as measured by the *LAI*. Only two of the targeted (coaching; courageous, risk-taker) attributes linked to activities by students had scores on the *LAI* that changed significantly (p. $\leq$.05). On the other hand, the eight other attributes which showed significant (p$\leq$.05) gains in *LAI* scores, were not specifically linked to instructional activities by students (see Table 1).

Table 2
Linking Effective Activities to Changes in Leader Attributes
Iowa State University

Activity (Judged effective)	Seen as effective by students	Seen as effective by project co-directors	Reason for effectiveness (As seen by students)	Attribute Affected (Linked)		
				As seen by students	Tested P-value	Targeted by instructor
Job shadowing	X	X	Provided content for building expertise (e.g., observed the behavior to be modeled). Increased contacts in the field.	Courageous, risk-taker Confident, accepting of self Networking	.050* .265 .269	Y Y Y
Workshops (presentations)	X	X	Acquired expertise to share with others. Increased contacts in the field. Required applying the content learned. Individuals had to work together in teams to plan and organize presentations. Improved presentation skills.	Courageous, risk-taker Confident, accepting of self Networking Team building Planning Delegating Willing to accept responsibility Communication	.050* .265 .269 .622 .215 .094 .920 .846	Y Y Y Y Y Y Y N
Seminars	X	X	Built knowledge base prerequisite to workshops.	Coaching Courageous, risk-taker Networking Team building	.034* .050* .269 .622	Y Y Y Y

* Significant at .05 level.

D. Suggestions for Improvement

1. *Seminars:*
   (a) Exposure to the complete list of thirty-seven attributes in an early seminar would have helped to provide context and direction for the other activities in the program.
   (b) Similarly, a more careful explanation of the goals of the program would have helped.
   (c) Less talking about the four leader attributes (which were the foci of the program) and more activities designed to develop them might have been more effective.

2. *Job shadowing:*
    (a) Greater preparation and direction for the job shadowing experience might have enhanced the outcomes.
    (b) More time to shadow is desirable.
    (c) A group debriefing session, held soon after the shadowing experience, might have clarified and reinforced what was learned.
3. *Workshop presentations*
    (a) The number of persons attending each workshop could have been increased by better advertising (e.g., direct mail).
    (b) It would have been beneficial to increase the number of presentations made by each team.

III. OUTCOMES: SIX-MONTH FOLLOW-UP

A. Practicing Leadership

1. Six months after the conclusion of the program, information was collected about the leadership behavior and performance of thirteen of the sixteen former program participants (81%). Seven of the thirteen respondents (54%) reported that they had engaged in a greater number of leadership activities as a result of the program during the six-month period than they had before entering the program.
2. The extent to which respondents engaged in additional leadership activities was not related to whether they were employed part-time or full-time or to their place of employment.
3. The types of additional leadership activities identified included (a) job-related (33%); (b) new professional roles (33%); and (c) community involvement (33%).

B. Usefulness of Leader Activities

1. Thirty-three of the thirty-seven leader attributes were used by at least one former participant. The four exceptions were (a) tolerant of ambiguity and complexity; (b) dependable, reliable; (c) emotionally balanced; and (d) stress management.
2. The six attributes used by thirty-eight percent or more of the thirteen respondents were as follows: courageous, risk-taker (77%); networking (62%);

visionary (54%); communication (38%); team building (38%); and coaching (38%).

3. Of the above six leader attributes, two had also been identified by program participants immediately after instruction as having been impacted by effective program activities (linked), and had shown statistically significant increases in *LAI* scores. These were courageous, risk-taker and coaching. The other four leader attributes noted above were only linked to effective activities.

C. Leadership Success

Respondents reported the extent to which they believed the program contributed to their success in accomplishing each of six leadership tasks. A rating scale of none (1), little (2), fair amount (3), and great deal (4) was used. The results were as follows:

Leadership Task	x	s
Implementing change and empowering others	2.8	.72
Achieving group unity and motivating others	2.3	.65
Satisfying the professional needs of group members	2.6	1.03
Inspiring a shared vision	2.8	.40
Establishing a good learning environment	2.7	.98
Exerting influence outside of the group	2.2	.75
Mean	2.6	.76

D. Additional Leadership Training

1. Four of the thirteen respondents (31%) were motivated by the leadership program to undertake additional leadership training during the six-month period.
2. Two respondents had completed the additional training while the other two were still engaged in it. In all four cases, the training was consistent with plans formulated during the program.
3. The types of leadership training reported were as follows: courses and workshops (5); program of reading (2); and a dissertation (1).

IV. OUTCOMES: INSTITUTIONAL IMPACT

Six months after the conclusion of the leadership development program the project co-director volunteered the following two comments: (1) As a result of the project, students and faculty in the three vocational departments involved have begun to develop closer working relationship; and (2) Many of the activities tried out and the materials developed for the project are now being used in other graduate and undergraduate courses.

V. COST

	Direct Cost	Indirect Cost (40%)	Total Cost
A. Total cost of the program (developing and conducting)	$17,569	$7,028	$24,597
B. Cost of conducting the program (repeating the program)	16,305	6,522	22,827
C. Average cost per student of conducting the program (n=16)	1,019	408	1,427
D. Cost of adding an additional student	236	94	330
E. Cost per hour of instruction (conducting the program)	362	145	507
F. Cost per participant hour of instruction (conducting the program)	23	9	32

APPENDIX J

Evaluation Summary:
Mississippi State University (#1 and #2)

EVALUATION SUMMARY

LEADERS AS FACILITATORS OF MENTAL AND PHYSICAL HEALTH IN VOCATIONAL EDUCATION

Jasper S. Lee, Director
Mississippi State University

I. DESCRIPTION

A. Program

1. *Format:*

   On March 20, 1991, a six-hour workshop was held at the University of Southern Mississippi. A second six-hour workshop was held at Mississippi State University on June 17, 1991.

2. *Program Objectives (attributes):*

   The two workshops were designed to acquaint participants with the attributes of effective leaders, and, particularly, to encourage them to facilitate the physical and mental well-being of vocational educators. The four specific health-related objectives (attributes) were to have participants understand and appreciate ways of (a) enhancing energy and stamina, (b) tolerating and coping with frustration, (c) practicing health care to improve emotional balance, and (d) managing stress.

3. *Significant Activities:*

   (a) The same topics and consultant/presenters were used in both workshops. The topics were (i) leadership and leadership attributes; (ii) the (poor) health status of Mississippi vocational, technical, and adult educators; (iii) positive health care in the life of an educator; (iv) dealing with stress and related issues; (v) strategies for leaders (to improve the health) of vocational, technical, and adult educators; and (vi) developing action plans and strategies.

   (b) The instructional approach included presentations of topics by resource persons, handouts, and participant discussion. The entire workshop was videotaped.

   (c) The workshops, as delivered, appear to be consistent with the proposal.

B. Participants

1. The twenty-two participants in the March 20 workshop were drawn primarily from the University of Southern Mississippi, but also included some students from Alcorn State University and Mississippi State University. The nineteen participants in the June 17 workshop were from Mississippi State University.
2. Table 1 presents information about the participants in both workshops. The demographics of the two groups appear to be similar, except perhaps for the place of their current employment.

Table 1

Workshop Participants

Item	March 20, 1991 Workshop*	June 19, 1991 Workshop*
1. Student status		
(a) Full-time	1	2
(b) Part-time	11	16
2. Degree pursuing		
(a) Masters	5	9
(b) Specialist	2	2
(c) Doctorate	5	7
3. Gender		
(a) Male	8	10
(b) Female	7	9
4. Ethnic group		
(a) African American	4	3
(b) White	11	16
5. School administrative experience		
(a) None	4	10
(b) 1 - 3 years	3	2
(c) 4 - 6 years	3	1
(d) 7 - 9 years	2	0
(e) 10 years or more	2	5
6. Managerial Experience		
(a) None	4	7
(b) 1 - 3 years	3	3
(c) 4 - 6 years	3	2
(d) 7 - 9 years	2	1
(e) 10 years or more	2	3
7. Age		
(a) 26 - 35 years	4	4
(b) 36 - 45 years	7	9
(c) 46 - 55 years	3	3
(d) 56 years or more	2	2
8. Current employment		
(a) Public/private K-12 (administrator)	0	3
(b) Public/private K-12 (teacher)	3	10
(c) Public/private postsecondary	10	1
(d) Nonprofit/public sector	3	2
(e) Health care	0	3
9. Participants with previous leadership training	12	15

*Twenty-two participants attended the March workshop, and nineteen attended the June workshop. Responses to items that do not total to these figures have missing data.

II. OUTCOMES IMMEDIATELY AFTER INSTRUCTION

A. Satisfaction

Table 2 presents the participants' ratings of their satisfaction with both workshops. It is apparent that the two groups were very satisfied with the organization and delivery of the workshops, felt that the experience was of value to them, and believed it should be made available to others.

Table 2
Participant Satisfaction
(5-point scale)

Item	March 20, 1991 Workshop (N=16)*		June 19, 1991 Workshop (N=19)	
	x	s	x	s
Workshop organization and delivery	4.8	.38	4.8	.39
Workshop value to participants and others	4.7	.50	4.7	.44

***Because some participants left the March 20th workshop early, data presented throughout this report will reflect only those who stayed.**

B. Perceived Change in Leader Attributes

1. *March 20, 1991 workshop*

(a) Participants felt that eleven of the thirty-seven leader attributes (see Table 3) had increased significantly ($p \leq .05$). The average statistically significant increase was 7.5 percentage points (100-percent scale), and the range of increase was 5.6 to 14.3 percentage points. These amounts may be compared with an average change of 2.8 percentage points and a range of .3-6.9 for the remaining twenty-six leader attributes that did *not* increase significantly.

(b) The workshop focused on enhancing participants' motivation and capability to improve four health-related attributes. Scores on one of these attributes, emotionally balanced, did increase significantly ($p \leq .05$). The scores of the other three targeted attributes (energetic with stamina, tolerant of frustration, and stress management) did not increase significantly. However, their average increase (4.9 percentage points) is higher than the average increase (2.8 percentage points) of all the other attributes that did not change significantly.

(c) Table 3 presents the leader attributes categorized by whether or not the scores increased significantly and by whether or not they were instructionally targeted health-related attributes (instructional objectives).

Table 3

Change in Perception of Leader Attributes Resulting from Instruction

March 20, 1991 Workshop (n=15)

Objectives Effect	Targeted Attributes	Non-Targeted Attributes
Statistically Significant Change ($p \leq .05$)	Emotionally balanced	Information gathering and managing Insightful Visionary Persistent Courageous, risk-taker Delegating Coaching Conflict management Ideological beliefs appropriate to group Problem-solving
No Statistically Significant Change	Energetic with stamina Tolerant of frustration Stress management	(Remainder of the 37 leader attributes)

2. *June 19, 1991 workshop*

(a) Participants believed that nine of the thirty-seven leader attributes had increased significantly ($p \leq .05$). The average statistically significant increase was 8.9 percentage points (100-percent scale), and the range of increase was 4.0 to 12.8 percentage points. These increases may be compared with an average change of 2.4 percentage points and a range of .2 to 6.5 for the remaining 28 attributes that did *not* increase significantly.

(b) Three of the four leader attributes—tolerant of frustration, emotionally balanced, and stress management—which were targeted attributes, increased significantly ($p \leq .05$). Their average increase was 10.2 percentage points, indicating that the workshop was quite successful in achieving its objectives.

(c) Table 4 presents the leader attributes categorized by whether or not the scores increased significantly and by whether or not they were targeted health-related attributes (instructional objectives).

Table 4

Change in Perception of Leader Attributes Resulting from Instruction

June 19, 1991 Workshop (n=19)

Objectives Effect	Targeted Attributes	Non-Targeted Attributes
Statistically Significant Change ($p \leq .05$)	Tolerant of frustration Emotionally balanced Stress-management	Insightful Tolerant of ambiguity and complexity Enthusiastic, optimistic Committed to the common good Conflict management Problem-solving
No Statistically Significant Change	Energetic with stamina	(Remainder of the 37 leader attributes)

3. *The two workshops*

(a) The data indicates that the results of the workshops were reasonably consistent and successful. Only the attribute energetic with stamina failed to be increased significantly. The other targeted attributes were significantly improved ($p \leq .05$) by one or both workshops.

(b) Three of the non-targeted attributes, insightful, conflict management, and problem-solving, were improved significantly by both workshops.

(c) The increase in attribute scores resulting from the two six-hour workshops should probably be interpreted as (i) greater awareness of the importance of the attributes for effective leaders, and (ii) in the case of health-related attributes, greater motivation and more knowledge about strategies for improving the attributes.

C. Linking Outcomes to Activities

1. *March 20, 1991 workshop and June 17, 1991 workshop*
   - (a) Participants and the project director responded in writing to the question, "Which major activities in the program were most effective and what impacts/effects did they have on you and/or the group?" Tables 5 and 6 present a summary of the responses. The activities are listed in rank order from the most to least frequently mentioned activity.
   - (b) Tables 5 and 6 also show (i) the probability levels associated with the increase in linked leader attributes due to the workshop, and (ii) whether each linked attribute was a targeted instructional objective of the workshop.
2. *The two workshops*

   There is a good deal of similarity between the perceptions of participants in both workshops. The topics of (i) positive health care, (ii) stress and related issues, and (iii) leadership and leader attributes were the three activities mentioned as effective most frequently by both groups (and the director). Further, the reasons given for the activities effectiveness, and the leader attributes to which they were linked, are very consistent.

Table 5
Linking Effective Activities to Change in Leader Attributes
(March 20, 1991 Workshop)

Activity (Judged effective)	Seen as effective by students	Seen as effective by project director	Reasons for effectiveness (As seen by students)	Attribute Affected (Linked)		
				As seen by students	Tested P-value	Targeted by instructor
Topic: Positive health care	X	X	Created awareness of the importance of general wellness to participants and others (e.g., diet, exercise).	Energetic with stamina	.084	Y
				Emotionally balanced	.040*	Y
				Stress management	.143	Y
				Tolerant of frustration	.432	Y
Topic: Leadership and leader attributes	X	X	Increased knowledge about (and importance of) leader attributes.	(See Table 3 for 11 attributes significantly increased)	<.050	
				(See Table 3 for attributes not significantly increased)	>.050	
Topic: Stress and related issues	X	X	Learned strategies for dealing with stress.	Stress management	.143	Y
				Tolerant of frustration	.432	Y
Topic: Health status of Mississippi vocational, technical, and adult educators	X	X	Increased motivation to improve health-related attributes.			
Approach: Group discussion	X	—	Identified activities to help improve health-related attributes.	Energetic with stamina	.084	Y
				Emotionally balanced	.040*	Y
				Stress management	.143	Y
				Tolerant of frustration	.432	Y
Developing action plans and strategies	—	X	Encouraged and facilitated doing something after the workshop.	Energetic with stamina	.084	Y
				Emotionally balanced	.040*	Y
				Stress management	.143	Y
				Tolerant of frustration	.432	Y

Table 6
Linking Effective Activities to Change in Leader Attributes
(June 17, 1991 Workshop)

Activity (Judged effective)	Seen as effective by students	Seen as effective by director	Reason for effectiveness (As seen by students)	Attribute Affected (Linked)		
				As seen by students	Tested P-value	Targeted by instructor
Topic: Positive health care	X	X	Become more aware of and more caring about instructors' health (e.g., diet, exercise).	Energetic with stamina	.503	Y
				Emotionally balanced	.050	Y
				Stress management	.002	Y
				Tolerant of frustration	.005	Y
Topic: Stress and related issues	X	X	Learned strategies for dealing with stress.	Stress management	.002	Y
				Tolerant of frustration	.005	Y
Topic: Leadership and leader attributes	X	X	Increased knowledge about (and importance of) leader attributes.	(See Table 4 for nine attributes significantly increased)	<.050	
				(See Table 4 for attributes not increased significantly)	>.050	
Approach: Instructional methods	X	X	Varied background of participants added to group discussion. Concrete examples used during the workshop (e.g., meals, refreshments).			

D. Suggestions for Improvement

1. *March 20, 1991 workshop*

   The only suggestions were to (a) increase the amount of time allocated to the workshop, and (b) provide an opportunity for role playing.

2. *June 17, 1991 workshop*

   There were three suggestions from the entire group: (a) provide more techniques for reducing stress and frustrations, (b) involve teachers as presenters at the workshop, and (c) invite spouses to the workshop.

III. OUTCOMES: SIX-MONTH FOLLOW-UP

A. Practicing Leadership

1. *March 20, 1991 Workshop*
    (a) Six months after the conclusion of the program an attempt was made to obtain information from former program participants about their leadership behavior and performance. Fifty-nine percent (n=13) of the twenty-two program participants in the March 20 workshop responded. Eight of the thirteen respondents reported that, as a result of the program, they had engaged in a greater number of leadership activities than before they entered the program.
    (b) All of the respondents were employed full-time at schools other than Mississippi State University.
    (c) The types of additional leadership activities identified included (i) job-related (58%); (ii) new professional roles (25%); (iii) community involvement (8%); and (iv) social activities (8%).
2. *June 17, 1991 Workshop*
    (a) Seventy-four percent (n=14) of the nineteen participants of the June 17 workshop responded to the six-month follow-up. Five of the fourteen respondents indicated that they had engaged in a greater number of leadership activities than before they entered the program.
    (b) All of the respondents who were employed worked at an institution other than Mississippi State University.
    (c) The types of additional leadership activities were as follows: (i) job-related (25%); (ii) community involvement (63%); and (iii) social activities (12%).
3. *The two workshops*
    (a) There is no significant difference in the return rates from the follow-up of participants in the two workshops.
    (b) Given the relatively small number of respondents, there is no significant difference in the percent who engaged in greater numbers of leadership activities as a result of the workshops. Pooling the data from the two workshops reveals that forty-eight percent of the respondents believed that they had increased their leadership activities as a result of the program.
    (c) Pooling the data from the two workshops also reveals that the types of activities identified were (i) job-related (42%); (ii) new professional roles

(12%); (iii) community involvement (36%); and (iv) social activities (10%).

B. Usefulness of Leader Attributes

1. *March 20, 1991 Workshop*
    - (a) All of the leader attributes had been used by at least one of the thirteen respondents.
    - (b) The ten attributes reported to have been used most frequently were (i) motivating others (62%); (ii) insightful (46%); (iii) adaptable, open to change (46%); (iv) accountable (46%); (v) willing to accept responsibility (46%); (vi) committed to the common good (46%); (vii) networking (46%); (viii) planning (46%); (ix) delegating (46%); and (x) stress management (46%).
    - (c) Of the above ten most frequently used attributes, only three had *either* made significant increases ($p \leq .05$) in their *LAI* scores *or* had been linked to effective instructional by participants—insightful, delegating, and stress management.
2. *June 17, 1991 Workshop*
    - (a) With the exception of ideological beliefs appropriate to the group, all of the thirty-seven attributes were considered "most useful" by one or more of the fourteen respondents.
    - (b) The seven attributes reported to have been used most frequently were (i) stress management (71%); (ii) adaptable, open to change (64%); (iii) planning (64%); (iv) organizing (57%); (v) willing to accept responsibility (57%); (vi) time management (50%); and (vii) dependable, reliable (50%).
    - (c) Of the seven most useful leader attributes, only stress management had significant increases ($p \leq .05$) on the *LAI and* had been linked to effective instructional activities by the participants.
3. *The two workshops*
    - (a) For all practical purposes, it can be concluded that all the thirty-seven leader attributes were found useful by one or more of the responding participants.
    - (b) By pooling the results of the two workshops, the leader attributes believed to be most useful by half or more of the respondents were (i) stress management (59%); (ii) adaptable, open to change (55%); (iii) planning

(55%); (iv) willing to accept responsibility (52%); and (v) organizing (51%).

(c) Of the attributes believed to be most useful by half or more of the respondents, only stress management was either linked to effective instruction by participants and/or had made significant increases (p≤.05) on the *LAI*. Managing stress was one of the four instructional objectives of the workshops.

C. Leadership Success

1. Respondents reported the extent to which they believed the workshops had contributed to their success in accomplishing each of six leadership tasks. A rating scale of none (1), little (2), fair amount (3), and great deal (4) was used. The results were as follows:

Leadership Task	March 20 Workshop		June 17 Workshop	
	x	s	x	s
Implementing change and empowering others	2.9	1.10	2.7	.65
Achieving group unity and motivating others	2.9	.70	3.0	.74
Satisfying the professional needs of group members	2.6	.50	2.5	.69
Inspiring a shared vision	2.8	.44	2.5	.52
Establishing a good learning environment	3.0	.71	2.8	.69
Exerting influence outside of the group	2.8	.93	2.7	.89
Mean	2.8	.73	2.6	.70

2. As might be expected, there appears to be no practical difference between the success of the two administrations of the workshop.

D. Additional Leadership Training

1. *March 20, 1991 Workshop*

None of the thirteen respondents had engaged in additional leadership training activities during the six-month period.

2. *June 17, 1991 Workshop*

   Two of the fourteen respondents had engaged in additional leadership training activities during the six-month period. One undertook reading and the other enrolled in a community-based leadership development program.

3. *The two workshops*

   A total of only two respondents from the two workshops engaged in additional leadership training. Given the limited length and specialized focus of the workshop, this result is not unexpected.

IV. OUTCOMES: INSTITUTIONAL IMPACT

Six months after the conclusion of the program, the director of the project reported that (1) faculty are noticeably more sensitive to the "wellness" needs of their advisees, and are beginning to suggest stress reduction techniques to certain students; and (2) an attempt will be made to repeat the leadership development workshops.

V. COST

	Direct Cost	Indirect Cost (26.7%)	Total Cost
A. Total cost of program (developing and conducting)	$8,392	$2,241	$10,633
B. Cost of conducting the program (repeating the program)	7,133	1,905	9,038
C. Average cost per student of conducting the program (n=41)	174	46	220
D. Cost of adding an additional student	55	15	70
E. Cost per hour of instruction (conducting the program)	594	159	753
F. Cost per participant hour of instruction (conducting the program)	29	8	37

APPENDIX K

Evaluation Summary:
North Carolina State University

EVALUATION SUMMARY

A LEADERSHIP DEVELOPMENT PROPOSAL FOR GRADUATE STUDENTS IN VOCATIONAL EDUCATION

Robert E. Wenig, Director
North Carolina State University

I. DESCRIPTION

A. Program

1. *Format:*

A new three-credit semester course was offered as ED 598A, Leadership Development in Occupational Education. The class met fifteen times between January 9 and May 1, 1991. Each class session was three hours long. In addition, a two-day trip was taken to the Washington, DC area. Reading and writing tasks were also assigned for completion out-of-class.

The two texts used for the course were (a) W. Bennis (1989), *On Becoming a Leader*, New York, NY: Addison-Wesley, and (b) D. Campbell (1984), *If I'm in Charge Here Why is Everybody Laughing* (2nd ed.), Greensboro, NC: Center for Creative Leadership.

2. *Program Objectives (attributes):*

(a) The major purposes of the course were to help students (i) become familiar with and gain an appreciation of leader attributes, (ii) understand their own strengths and weaknesses as leaders, (iii) become familiar with and apply intervention strategies for improving selected leader attributes, and (iv) apply certain leader attributes in selected activities.

(b) The particular attributes expected to be impacted were (i) confident, accepting of self; (ii) tolerant of ambiguity and complexity; (iii) courageous, risk-taker; (iv) communication; (v) sensitivity, respect; (vi) motivating others; and (vii) conflict management.

3. *Significant Activities:*

The major activities of the course may be associated with the four purposes noted above, as follows:

(a) Become familiar with and gain an appreciation of leader attributes—(i) national and state leaders made presentations, (ii) day-long visit to Center for Creative Leadership, (iii) reading and book reports, and (iv) visiting leaders at work.

(b) Understand their own strengths and weaknesses as leaders—(i) personal analyses (e.g., using Personal Profile System, Values Analysis System); and (ii) writing a report of the self-analysis.

(c) Become familiar with and apply intervention strategies for improving selected leader attributes—(i) presentations by faculty and guests; and (ii) prepare a paper on the way leaders have developed their attributes.

(d) Apply certain leader attributes in selected situations: (i) two-day visit to congressional staff in Washington, DC and the University of Maryland, (ii) plan a three-day conference, and (iii) prepare a report on their own leadership goals and how to prepare for them.

B. Participants (n=18)*

Student status: 2 Full-time, 16 Part-time,
Degree pursuing: 8 Masters, 1 Specialist, 9 Doctorate
Gender: 7 Male, 10 Female
Ethnic group: 1 African American, 1 Asian, 15 White
School administrative experience: 15 had 0 years, 1 had 1-3 years, 1 had 4-6 years, 1 had 7-9 years
Experience as a manager in a nonschool setting: 5 had 0 years, 1 had 1-3 years, 5 had 4-6 years, 2 had 7-9 years, 4 had 10 or more years
Age: 1 was 25 years or less, 5 were 26-35 years, 8 were 36-45 years, 2 were to 46-55 years, 1 was 56 years and over

* Numbers which do not add to eighteen are missing data.

II. OUTCOMES IMMEDIATELY AFTER INSTRUCTION

A. Satisfaction

Participants felt that the course had some value in developing them to become leaders (x=3.8, S=1.25 on a 5-point scale), but thought that the way the course was organized and delivered needed revision before being offered again (x=3.0, S=1.10 on a 5-point scale).

B. Perceived Change in Leader Attributes

1. Participants perceived that sixteen of the thirty-seven leader attributes increased significantly ($p \leq .05$) as a result of the course. The mean change in score of the sixteen attributes that increased significantly was 9.4 percentage points (on a 100-percentage point scale). Six of the attributes increased ten or more percentage points: (a) confident, accepting of self; (b) tolerant of ambiguity and complexity; (c) visionary; (d) persistent; (e) planning; and (f) appropriate use of leadership styles.
2. Seven attributes were targeted as program objectives. Four of the seven increased significantly; the mean gain was 10.3 percentage points. The scores of the remaining three targeted attributes increased an average of 5.1 percentage points.
3. Table 1 shows the leader attributes classified by whether or not they were perceived to have increased significantly, and whether or not they were targeted as instructional objectives. These results reflect a considerable improvement in participants' perceptions about their leader attributes.

Table 1
Change in Perception of Leader Attributes Resulting from Instruction
North Carolina State University (n=18)

Objectives Effect	Targeted Attributes	Non-Targeted Attributes
Statistically Significant Change ($p \leq .05$)	Confident, accepting of self Courageous, risk-taker Motivating others Tolerant of ambiguity and complexity	Insightful Adaptable, open to change Visionary Persistent Enthusiastic, optimistic Networking Planning Delegating Time management Appropriate use of leadership styles Decision-making Problem-solving
No Statistically Significant Change	Communication Sensitivity, respect Conflict management	(Remainder of the 37 attributes)

C. Linking Outcomes to Activities

1. The participants were asked to respond in writing and orally (focus group) to the following questions: (a) What activities were most effective? (b) Why were the activities effective? (c) What attributes did they impact? The project director was also asked to respond in writing to the same questions. Table 2 summarizes the responses. The attributes linked to effective activities in the table were either reported by the students and/or the project director, or they were inferred directly from the reasons given for the activity's effectiveness.
2. Table 2 reveals that the following seven attributes which were linked to program activities had increased significantly ($p \leq .05$): confident, accepting of self; planning; adaptable, open to change; networking; courageous, risk-taker; visionary; and appropriate use of leadership styles. Five of these attributes were not specifically targeted program objectives.
3. Five of the seven originally targeted attributes were linked to effective instructional activities, but only two of these (confident, accepting of self; and courageous, risk-taker) had increased significantly ($p \leq .05$).

Table 2
Linking Effective Activities to Change in Leader Attributes
North Carolina State University

Activity (Judged effective)	Seen as effective by students	Seen as effective by project director	Reasons for effectiveness (As seen by students)	Attribute Affected (Linked)		
				As seen by students	Tested P-value	Targeted by instructor
"Personal Profile" (Computer program to develop profile of leader qualities)	X	X	Learned about self: (1) compared natural with adaptive behavior, and (2) useful for others to rate you and compare. Provided ideas for dealing with conflict.	Confident, accepting of self Planning (leadership goals) Adaptable, open to change Conflict management	.001** .001** .000** .052	Y N N Y
Field trip to Washington, DC	X	X	Opportunity for interaction with (1) participants, and (2) students from Univ. of Maryland. Learned how to exert influence in government.	Team building Planning (leadership goals) Sensitivity, respect Adaptable, open to change Networking	.341 .001** .069 .000** .021*	N N Y N N
Guest speakers	X	X	Role models: (1) reinforced importance of leader attributes, and (2) provided basis for self-analysis. Emphasized importance of four key attributes: (1) listening, (2) creativity, (3) risk-taking, and (4) not taking yourself too seriously.	Planning (leadership goals) Communication Courageous, risk-taker Visionary Tolerant of frustration	.001** .228 .014* .001** .069	N Y Y N N
Book report	X	X	Opportunity to expand views, explore various theories, and learn about leadership styles.	Appropriate use of leadership styles	.000**	N
Observations of leaders at work	X	X	Reinforces concepts as applied in real situations. Particular emphasis on the importance of (1) vision, and (2) knowing yourself.	Visionary Confident, accepting of self	.001** .001**	N Y

D. Suggestions for Improvement

1. Students agreed that more time should be provided early in the course for them to interact in semistructured situations (e.g., retreat, Ropes course, field trip). This would help build the "team," increase willingness to change and adapt attributes, and to take risks in a supportive environment.
2. A need for more course organization and structure was also expressed by a number of participants. This would help to clarify the relationships between activities and objectives, as well as among activities.

III. OUTCOMES: SIX-MONTH FOLLOW-UP

A. Practicing Leadership

1. Six months after the conclusion of the program an attempt was made to obtain information about the leadership behavior and performance of former program participants. Fifteen of the eighteen former participants (83%) responded. Of the fifteen respondents, seven (47%) reported that, as a result of the program, they had engaged in a greater number of leadership activities than before the program.
2. Engaging or not engaging in additional leadership activities was not related to the place of employment or to full- versus part-time work.
3. The types of additional leadership activities reported were (a) job-related (50%); (b) new professional roles (20%); (c) community involvement (20%); and (d) social activities (10%).

B. Usefulness of Leader Attributes

1. All of the thirty-seven leader attributes were used by at least one respondent.
2. The eleven attributes reported to have been used by the most respondents were (a) confident, accepting of self (73%); (b) adaptable, open to change (67%); (c) insightful (60%); (d) visionary (60%); (e) courageous, risk-taker (53%); (f) team building (53%); (g) tolerant of ambiguity and complexity (47%); (h) assertive, initiating (47%); (i) enthusiastic, optimistic (47%); (j) communication (47%); and (k) networking (47%).
3. Of the above eleven leader attributes, five had also been identified by program participants immediately after instruction as having been impacted by effective program activities (linked), *and* had shown statistically significant ($p \leq .05$) increases in *LAI* scores. These were (a) confident, accepting of self; (b)

adaptable, open to change; (c) visionary; (d) courageous, risk-taker; and (e) networking. Of the eleven noted in item 2 above, five other leader attributes were *either* linked to effective activities *or* had shown significant increases on the *LAI:* (a) insightful; (b) team building; (c) tolerant of ambiguity and complexity; (d) enthusiastic, optimistic; and (e) communication.

C. Leadership Success

Respondents reported the extent to which they believed the program contributed to their success in accomplishing each of six leadership tasks. A rating scale of none (1), little (2), fair amount (3), and great deal (4) was used. The results were as follows:

Leadership Task	x	S
Implementing change and empowering others	2.92	.90
Achieving group unity and motivating others	3.00	.71
Satisfying the professional needs of group members	2.58	.90
Inspiring a shared vision	2.85	.80
Establishing a good learning environment	2.73	1.01
Exerting influence outside of the group	2.54	.66
Mean	2.77	.83

D. Additional Leadership Training

Only one of the fifteen respondents engaged in additional leadership training during the six-month period. That person undertook a systematic program of reading.

IV. OUTCOMES: INSTITUTIONAL IMPACT

Six months after the conclusion of the program, the director of the project reported that (1) the three-credit leadership course developed for the project would continue to be taught as a regular offering for graduate students; and (2) other faculty in the department had begun to introduce leadership concepts and the use of leadership development activities into some undergraduate vocational teacher education courses.

V. COST

	Direct Cost	Indirect Cost (48%)	Total Cost
A. Total cost of the program (developing and conducting)	$11,001	$5,280	$16,281
B. Cost of conducting the program (repeating the program)	10,350	4,968	15,318
C. Average cost per student of conducting the program (n=18)	575	276	851
D. Cost of adding an additional student	89	43	132
E. Cost per hour of instruction (conducting the program)	170	81	251
F. Cost per participant hour of instruction (conducting the program)	9	5	14

APPENDIX L

Evaluation Summary:
University of Georgia

EVALUATION SUMMARY

LEADERSHIP ATTRIBUTES: AN ACTIVITY FOR ENHANCEMENT

Nelson A. Foell, Director
University of Georgia

I. DESCRIPTION

A. Program

1. *Format:*

This program was delivered as a five-semester hour course, EVO 904, Leadership Development for Vocational Educators, during the Spring of 1991. The course was team taught by three faculty members (all of them present at all meetings). Students met ten times for a total of forty-five hours, and spent approximately thirty-five additional hours on outside assignments.

The text for the course was J. M. Kouzes & B. Posner (1990), *The Leadership Challenge*, San Francisco, CA: Jossey-Bass.

2. *Program Objectives (attributes):*

Nine leader attributes served as foci for the course. These were (a) insightful; (b) communication; (c) visionary; (d) adaptable, open to change; (e) networking; (f) team building; (g) enthusiastic, optimistic; (h) decision-making; and (i) persistent.

3. *Significant Activities:*

(a) Activities that took place during class meetings included (i) administering personal assessment instruments (e.g., tests and inventories); (ii) presentations by three teams of students, each team reporting on three of the nine attributes targeted as objectives of the course; (iii) presentations by faculty and guests on such topics as theories of leadership, research on effective leadership, leadership styles, leadership attributes, women and minorities as leaders, leadership and management, leadership needed in the twenty-first century, and leadership and vocational education; and (iv) oral reports by students on their philosophies of vocational education with implications for practice in the twenty-first century.

(b) Activities completed out-of-class included (i) interviewing two leaders (and reporting on the interviews), (ii) reading and completing a report on a required contemporary book about leadership, (iii) preparing a report on an educational leader, (iv) completing the group planning necessary to make a report to the class on three of the targeted attributes, (v) trying out distance communication techniques, and (vi) preparing an individualized leadership development plan.

B. Participants (n=15)*

Student status: 8 Full-time, 7 Part-time
Degree pursuing: 1 Masters, 1 Specialist, 13 Doctorate
Gender: 11 Male, 4 Female
Ethnic group: 12 White, 2 African American, 1 Asian/Pacific Islander
School administrative experience: 5 had none, 3 had 1-3 years, 2 had 7-9 years, 2 had 10 or more years
Experience as a manager in a nonschool setting: 5 had none, 4 had 1-3 years, 2 had 4-6 years, 1 had 10 or more years
Age: 3 were 26-35 years, 9 were 36-45 years

* Numbers which do not add to fifteen are missing data.

II. OUTCOMES: IMMEDIATELY AFTER INSTRUCTION

A. Satisfaction

1. The students felt that the course was organized and delivered satisfactorily (x=4.0, S=1.04 on a 5-point scale).
2. The students believed that the course was valuable to them and more like it should be made available to other students (x=4.4, S=1.00 on a 5-point scale).

B. Perceived Change in Leader Attributes

1. Seven of the thirty-seven leader attributes were perceived by students (n=12) to increase significantly ($p \leq .05$).
2. As shown in Table 1, two of the nine attributes targeted as instructional objectives showed significant gains ($p \leq .05$): adaptable, open to change increased 9.1 percentage points; and visionary gained 15.7 percentage points. The seven other targeted attributes had an average increase of only 4.0 percentage points.

3. Five leader attributes, which were not targeted, showed significant increases ($p \leq .05$). These increases ranged from 5.7 to 11.5 percentage points, averaging 9.0 percentage points (see Table 1).

Table 1
Change in Perception of Leader Attributes Resulting from Instruction
University of Georgia (n=12)

Objectives Effect	Targeted Attributes	Non-Targeted Attributes
Statistically Significant Change ($p \leq .05$)	Adaptable, open to change Visionary	Tolerant of ambiguity and complexity Assertive, initiating Confident, accepting of self Ideological beliefs appropriate to the group Problem-solving
No Statistically Significant Change	Insightful Enthusiastic, optimistic Persistent Communication Networking Team building Decision-making	(Remainder of the 37 attributes)

C. Linking Outcomes to Activities

1. Table 2 summarizes the views of students and the project director about (a) the program activities considered most effective, (b) why they were thought to be effective, (c) the leader attributes which students felt were impacted by the activities, (d) whether or not the attributes believed to be impacted were targeted (instructional objectives) or not, and (e) the probability that the increases in attribute scores on the *LAI* were due to chance.
2. The students and the project director linked activities that they thought were particularly effective with five leader attributes that were targeted: (a) insightful; (b) visionary; (c) communication; (d) team building; and (e) enthusiastic, optimistic. Only visionary, however, had a statistically significant increase on its *LAI* score.

3. Effective activities were also linked to the following three attributes that were not targeted instructional objectives: (a) appropriate use of leadership styles; (b) self-confident, accepting of self; and (c) ideological beliefs appropriate to the group. Two of these attributes (self-confident, accepting of self, and ideological beliefs appropriate to the group) had statistically significant gains on the *LAI*.

Table 2
Linking Effective Activities to Change in Leader Attributes
University of Georgia

Activity (Judged effective)	Seen as effective by students	Seen as effective by project director	Reasons for effectiveness (As seen by students)	Attribute Affected (Linked)		
				As seen by students	Tested P-value	Targeted by instructor
Interviews	X	X	Illustrates how leader attributes are used by real people. Reinforces what literature has to say about leadership. Helps articulate a philosophy of vocational education. Emphasizes differences between leaders and managers. Provides understanding of the influential power of leaders.	Insightful Visionary Communication	.054 .001** .683	Y Y Y
Self-assessment instruments and leadership plan development	X	X	Helps to know self and to set goals for improvement. Sensitizes to use of proper leadership style.	Appropriate use of leadership styles Self-confident, accepting of self	.160 .007**	N N
Group project	X	X	Demonstrated attributes through guest speaker models. Focused on what to look for in leaders.	Team building Communication Ideological beliefs appropriate to the group Enthusiastic, optimistic	.626 .683 .044* .469	Y Y N Y

* Significant at .05 level.
** Significant at .01 level.

D. Suggestions for Improvement

1. Students believed it would be desirable to require three rather than two interviews with leaders in the field.
2. They also appeared willing to meet during the week that the distance delivery procedure was tried out.
3. It was suggested that class sessions could provide for greater student interaction and that the case study approach should be tried.
4. Finally, it was suggested that two leadership development courses might be offered; one at the master's-level and a second (follow-up) for doctoral students.

III. OUTCOMES: SIX-MONTH FOLLOW-UP

A. Practicing Leadership

1. Six months after the conclusion of the program, information was collected about the leadership behavior and performances of ten of the fifteen former program participants (67%). Six of the ten respondents (60%) reported that they had engaged in a greater number of leadership activities as a result of the program during the six-month period than they had before entering the program.
2. A smaller proportion of those who remained at the University of Georgia after the program engaged in additional leadership activities than those who returned to work at other institutions.
3. The types of additional leadership activities identified included (a) job-related (50%); (b) new professional roles (38%); and (c) community involvement (12%).

B. Usefulness of Leader Activities

1. All thirty-seven of the leader attributes were used by at least one of the ten respondents.
2. The nineteen attributes used by fifty percent or more of the ten respondents were as follows: (a) visionary (100%); (b) communication (90%); (c) adaptable, open to change (80%); (d) insightful (70%); (e) confident, accepting of self (70%); (f) motivating others (70%); (g) planning (70%); (h) enthusiastic, optimistic (60%); (i) personal integrity (60%); (j) networking (60%); (k) appropriate use of leadership styles (60%); (l) decision-making (60%); (m) tolerant of ambiguity

and complexity (50%); (n) willing to accept responsibility (50%); (o) intelligent with practical judgment (50%); (p) sensitivity, respect (50%); (q) team building (50%); (r) conflict management (50%); and (s) problem-solving (50%).

3. Of the above nineteen leader attributes, four had also been identified by program participants immediately after instruction as having been impacted by effective program activities (linked), *and* had shown statistically significant increases in *LAI* scores (<.05). These were (a) visionary; (b) communication; (c) insightful; and (d) enthusiastic, optimistic. Six other attributes were either linked *or* had shown significant gains in *LAI* scores: (a) adaptable, open to change; (b) confident, accepting of self; (c) networking; (d) appropriate use of leadership styles; (e) decision-making; and (f) team building.

C. Leadership Success

Respondents reported the extent to which they believed the program contributed to their success in accomplishing each of six leadership tasks. A rating scale of none (1), little (2), fair amount (3), and great deal (4) was used. The results were as follows:

Leadership Task	x	S
Implementing change and empowering others	2.8	.67
Achieving group unity and motivating others	2.9	.33
Satisfying the professional needs of group members	2.9	.60
Inspiring a shared vision	3.3	.71
Establishing a good learning environment	2.9	.99
Exerting influence outside of the group	2.7	.71
Mean	2.9	.67

D. Additional Leadership Training

1. Two of the ten respondents were motivated by the leadership program to undertake some additional leadership training during the six-month period.

2. Both individuals undertook systematic programs of reading about particular aspects of leadership. One of these was consistent with a self-development program planned during the leadership program.

IV. OUTCOMES: INSTITUTIONAL IMPACT

Six months after the conclusion of the program, the director of the project reported that (1) the set of four core courses for doctoral students in vocational education is being revised to incorporate a leadership theme and to integrate a variety of leadership activities throughout the core courses; (2) the style of leadership in the division is becoming more participatory with greater emphasis upon teamwork and empowerment; and (3) a core of leadership courses at the master's level is being contemplated.

V. COST

	Direct Cost	Indirect Cost (62%)	Total Cost
A. Total cost of program (developing and conducting)	$ 19,134	$ 11,863	$ 30,997
B. Cost of conducting the program (repeating the program)	17,497	10,848	28,345
C. Average cost per student of conducting the program (n=15)	1,166	723	1,889
D. Cost of adding an additional student	100	62	162
E. Cost per hour of instruction (conducting the program)	389	241	630
F. Cost per participant hour of instruction (conducting the program)	26	16	42

APPENDIX M

Evaluation Summary:
University of Maryland

EVALUATION SUMMARY

PROFESSIONAL ASSOCIATION LEADERSHIP DEVELOPMENT AND INTERNSHIP

Yvonne S. Gentzler, Director
University of Maryland

I. DESCRIPTION

A. Program

1. *Format:*

This project was delivered as a new three-credit (semester hours) course under the title, EDIT 7880, Professional Association Leadership. Students were placed as interns in professional associations and, in addition, attended eight, two-hour seminars. The internships and seminars were held between October 12, 1990 and April 25, 1991. Reading assignments were also given. Students devoted at least six hours per week during the eighteen-week semester to the internship experience. In addition to the students who enrolled in the course and who had both the internship and seminar experiences, a number of other graduate students attended only the seminars, and received no credit. Members of this latter group were not considered participants in the project.

The texts used were G. A. Yukl (1989), *Leadership in Organizations*, Englewood Cliffs, NJ: Prentice Hall, and American Society of Association Executives (1988). *Principles of Association Management*, Washington, DC: Author.

2. *Program Objectives (attributes):*

The intent of the program was to acquaint graduate students with the opportunities for leadership through professional associations, and to provide models of leadership in a variety of professional association roles and situations. Thus, while the project did not focus directly on the development of specific leader attributes per se, it was anticipated that the following attributes would be affected as professional associations were studied and experienced: (a) visionary, (b) willing to accept responsibility, (c) committed to the common good, (d) networking, and (e) time management.

3. *Significant Activities:*

(a) All four of the students with internships were placed in the Washington, DC area in the following three organizations: (i) American Vocational Association (2 students), (ii) Maryland Rehabilitation and Employment Association (1 student), and (iii) National Association for Extension Home Economists (1 student). Students accepted by an association discussed with the director the optional internship activities and chose those that seemed most useful to the association and suited to the student (e.g., collecting data from members, and preparing computer programs for handling budget information).

(b) The topics of the eight seminars were (i) What is leadership? (ii) program overview and professional development, (iii) legal aspects of starting and managing a nonprofit organization, (iv) foundation leadership, (v) working with volunteers and members, (vi) structure and divisions of professional associations, (vii) from the board of director's perspective, and (viii) reflections and directions.

B. Participants (n=4)*

Student Status: 4 Full-time
Degree pursuing: 1 B.A., 2 Masters, 1 Doctorate
Gender: 1 Male, 3 Female
Ethnic group: 1 Asian, 3 White
School administrative experience: 4 had 0 years
Experience as a manager in a nonschool setting: 1 had 0 years, 2 had 1-3 years
Age: 4 were 26-35 years

*Numbers which do not add to four are missing data.

II. OUTCOMES: IMMEDIATELY AFTER INSTRUCTION

A. Satisfaction

1. Students were very satisfied with the way the course was organized and facilitated ($x=4.4$, $S=.76$ on a 5-point scale).
2. The students also felt that they had further developed their leadership capacities and would be more effective leaders in the future as a result of having taken the course ($x=4.3$, $S=.92$ on a 5-point scale).

B. Perceived Change in Leader Attributes

1. Because of the small number of students (n=4), no perceived increases in leader attributes were statistically significant ($p \leq .05$). However, five attributes did increase between 11.6 and 15.0 percentage points (100-percentage point scale) as a result of the experiences provided by the course. The remaining attributes gained between 0 and 7.5 percentage points. This magnitude of attribute change is not too different from most of the other leadership development projects.
2. As shown in Table 1, two of the five attributes targeted as instructional objectives increased 11.6 to 15.0 percentage points (on a 100 percentage point scale). The other three targeted leader attributes increased 7.5 percentage points or less. At the same time, three non-targeted attributes gained 11.6 or more percentage points.

Table 1
Change in Perception of Leader Attributes Resulting from the Program
University of Maryland (n=4)

Objectives Effect	Targeted Attributes	Non-Targeted Attributes
Increased 11.6 - 15.0 percentage points	Visionary Networking	Adaptable, open to change Coaching Insightful
Increased 0.0 - 7.5 percentage points	Willing to accept responsibility Committed to the common good Time management	(Remainder of the 37 attributes)

C. Linking Outcomes to Attributes

1. Table 2 summarizes the views of students and the project director about (a) the program activities considered most effective, (b) why they were thought to be effective, and (c) the attributes which students felt were impacted (linked) by the activities, (d) whether or not the attributes believed to be impacted were targeted (instructional objectives), and (e) the percentage point gains in attribute scores on the *LAI*.

2. The table shows the actual percentage point gains on the *LAI* for each linked attribute in order to compare the impressions of project participants with the actual point gains on the *LAI*. Note that only networking and insightful were reported by students as attributes that were impacted by effective activities *and* which showed high gain scores on the *LAI*. Networking was a targeted objective, while insightful was not.

Table 2
Linking Effective Activities to Changes in Leader Attributes
University of Maryland

Activity (Judged effective)	Seen as effective by students	Seen as effective by project directors	Reason for effectiveness (As seen by students)	Attribute Affected (Linked)		
				As seen by students	Percentage Point Gains*	Targeted by instructor
Internship	X	X	Learning that they could do something of value for the profession.	Confident, accepting of self Willing to accept responsibility Courageous, risk-taker	7.5 0.0 5.0	N Y N
	X		Were made to feel a part of a team.	Team building	0.0	N
	X	X	Were made to depend on own resources.	Problem-solving Decision-making	2.5 0.0	N N
	X	X	Were able to meet many important people and develop contacts.	Networking	12.5	Y
	X	X	Were required to better manage an already busy schedule.	Time management	0.0	Y
Seminar Presentations	X	X	Seeing the fallibility of professional organization as well as their benefits.	Insightful	12.5	N

*Because the number of students in the project was small (n=4), percentage point gain scores on the *LAI* are presented in place of probability values.

D. Suggestions for Improvement

1. Internships should probably be more structured early in the experience, with students' self-directedness and initiative increasingly encouraged as the internship progresses.
2. More time needs to be spent by the project director developing the internships. This means exploring the optional activities within each association before

interns are assigned so that individual students might be better matched with placements and with assignments within associations.

3. Travel time is an important element in evaluating the costs and benefits of the experience to the students.
4. It would be desirable to increase the frequency of the seminars and to encourage more group interaction as a part of each seminar.

III. OUTCOMES: SIX-MONTH FOLLOW-UP

A. Practicing Leadership

1. Six months after the conclusion of the program, information was obtained from all four of the former program participants regarding their leadership behavior and performance. Of the four respondents, two reported that, as a result of the program, they had engaged in a greater number of leadership activities than before they entered the program.
2. One of the additional leadership activities identified was job-related and the other was part of a new professional role.

B. Usefulness of Leader Attributes

1. All of the leader attributes except four were used by the former program participants. The four exceptions were (a) visionary; (b) courageous, risk-taker; (c) networking; and (d) ideological beliefs appropriate to the group.
2. The seventeen attributes reported to have been most useful by two or more of the four former program participants were (a) conflict management (100%); (b) willing to accept responsibility (75%); (c) communication (75%); (d) planning (75%); (e) delegating (75%); (f) energetic with stamina (50%); (g) adaptable, open to change (50%); (h) achievement-oriented (50%); (i) enthusiastic, optimistic (50%); (j) tolerant of frustration (50%); (k) dependable, reliable (50%); (l) sensitivity, respect (50%); (m) motivating others (50%); (n) organizing (50%); (o) time management (50%); (p) decision-making (50%); and (q) problem-solving (50%).
3. Of the above seventeen leader attributes, five had also been identified by program participants immediately after instruction as *either* having statistically significant ($p \leq .05$) gains in *LAI* scores *or* having been impacted by effective program activities (linked). These attributes were (a) willing to accept

responsibility; (b) adaptable, open to change; (c) time management; (d) decision-making; and (e) problem-solving.

C. Leadership Success

Two respondents reported the extent to which they believed the program contributed to their success in accomplishing each of six leadership tasks. A rating scale of none (1), little (2), fair amount (3), and great deal (4) was used. The results were as follows:

Leadership Task	x	S
Implementing change and empowering others	3.0	.00
Achieving group unity and motivating others	3.0	1.41
Satisfying the professional needs of group members	3.0	.00
Inspiring a shared vision	3.5	.71
Establishing a good learning environment	3.0	1.41
Exerting influence outside of the group	3.0	1.41
Mean	3.1	.82

D. Additional Leadership Training

No additional leadership training was taken by any of the four program participants.

IV. OUTCOMES: INSTITUTIONAL IMPACT

Six months after the conclusion of the program, the director of the project reported that (1) a new course in *Professional Leadership and Management* has been developed and is being offered by the department; and (2) she has been made responsible for teaching the leadership course required of all vocational majors.

V. COST

	Direct Cost	Indirect Cost (41.9%)	Total Cost
A. Total cost of program (developing and conducting)	$17,480	$7,318	$24,798
B. Cost of conducting the program (repeating the program)	11,664	4,899	16,563
C. Average cost per student of conducting the program (n=4)	2,916	1,225	4,141
D. Cost of adding an additional student	760	319	1,079
E. Cost per hour of instruction (conducting the program)	94	40	134
F. Cost per participant hour of instruction (conducting the program)*	24	10	33

* Includes hours spent interning.

APPENDIX N

Evaluation Summary:
University of Minnesota

EVALUATION SUMMARY

PREPARING FOR EDUCATIONAL LEADERSHIP

Jerome Moss, Jr. & Marcia Walsh, Co-Directors
University of Minnesota

I. DESCRIPTION

A. Program

1. *History:*

   This is the seventh time that programs very much like this one have been offered.

2. *Format:*

   (a) Three multi-day seminars were developed and included (a) five days in a retreat setting in August (40 hours), (b) two-and-a-half days on-campus in November (25 hours), and (c) two-and-a-half days on-campus in January (25 hours). Outside assignment time was estimated at one-hundred eighty additional hours. Nine quarter credits were awarded.

   (b) Curriculum materials included required readings consisting of articles from current journals, newspapers, and news magazines which pertained to one or more of the topics presented at the seminars. In addition, most presenters utilized specially prepared handout materials. The videos utilized were *Managing Cultural Diversity: Communicating Across Cultures*, *Discovering the Future*, and *Balancing Work and Family*.

3. *Program Objectives (attributes):*

   The following twenty-two leader attributes were included as program objectives: (a) adaptable, open to change; (b) tolerant of ambiguity and complexity; (c) achievement-oriented; (d) assertive, initiating; (e) confident, accepting of self; (f) willing to accept responsibility; (g) enthusiastic, optimistic; (h) courageous, risk-taker; (i) committed to the common good; (j) communication; (k) sensitivity, respect; (l) motivating others; (m) networking; (n) planning; (o) delegating; (p) team building; (q) conflict management; (r) time management; (s) appropriate use of leadership styles; (t) decision-making; (u) problem-solving; and (v) information gathering and managing.

4. *Significant activities:*

   (a) The instructional approach included (i) presentations and panels utilizing appropriate role models (42 different individuals were involved); (ii) small group activities using simulations, games, and discussion to encourage interaction and group problem-solving; and (iii) the use of concentrated, intense seminars (one provided in a retreat setting) interspersed with assignments to be completed out-of-class.

(b) The planned instructional activities during the seminars are shown in Table 1 together with the attributes they were intended to affect.

B. Participants (n=25)*

Student status: 1 Full-time, 24 Part-time
Degree pursuing: 1 B.A., 11 Masters, 5 Specialist, 2 Doctorate
Gender: 1 Male, 24 Female
Ethnic group: 1 African American, 1 Native American, 23 White
School administrative experience: 16 had 0 years, 6 had 1-3 years, 1 had 4-6 years, 2 had 7-9 years
Experience as a manager in a nonschool setting: 12 had 0 years, 8 had 1-3 years, 2 had 4-6 years, 2 had 7-9 years, 1 had 10 or more years
Age: 5 were 26-35 years, 9 were 36-45 years, 10 were 46-55 years, 1 was 56 or over.

* Numbers which do not add to twenty-five are missing data.

Table 1
Activities and the Attributes They Were Designed to Affect

In-Class Activities/Topics	Out-of-Class Activities	Attribute/Objective
APPROACH Use of role models		Achievement-oriented; willing to accept responsibility; courageous, risk-taker; networking; enthusiastic, optimistic
Group interaction activities, retreat setting, intense seminars		Team building; networking; appropriate use of leadership styles; tolerant of ambiguity and complexity; adaptable, open to change; confident, accepting of self; willing to accept responsibility; communication; sensitivity, respect; networking; decision-making; problem-solving; enthusiastic, optimistic
SELF-ASSESSMENT Instruments [Meyers-Briggs, LEAD-self, conflict management, administrative competencies]	Shadowing administrators, application scenarios	Adaptable, open to change; confident, accepting of self; sensitivity, respect; planning; appropriate use of leadership styles; assertive, initiating
PLANNING FOR CAREER DEVELOPMENT Leadership development process, balancing work and family, barriers to professional advancement	Application scenarios; formulate a leadership development plan; shadowing administrators; networking; reading	Planning; communication; adaptable, open to change; achievement-oriented; willing to accept responsibility; decision-making; information gathering and managing
LEADER ATTRIBUTES DEVELOPMENT Networking	Networking/mentoring activity, keeping journal, application scenario, shadowing, reading	Networking; communication; planning; assertive, initiating; courageous, risk-taker
Communicating meaningfully Group interactions and critiques Persuasion presentation Introducing speakers	Independent study paper, application scenarios, other written reports, reading, shadowing report	Communication
Influencing legislators	Meeting with a legislator, application scenario	Communication; assertive, initiating; courageous, risk-taker; networking; information gathering and managing
Leadership (attributes, styles, ethics, creativity)	Application scenarios, shadowing, reading	Appropriate use of leadership styles; willing to accept responsibility; tolerant of ambiguity and complexity; problem-solving; adaptable, open to change; committed to the common good
Decision-making process	Application scenarios	Decision-making
Conflict management	Application scenarios	Conflict management
Time management	Application scenarios	Time management; delegating
Managing cultural diversity, sensitivity to handicapped	Application scenarios	Sensitivity, respect
Uses of power, participative management	Application scenarios	Decision-making; appropriate leadership styles; team building; sensitivity, respect; motivating others; confident, accepting of self; assertive, initiating
Motivating self and others	Application scenarios	Motivating others; confident, accepting of self
EXPLORING ADMINISTRATIVE RESPONSIBILITIES Administrator roles, responsibilities, perspectives, problems, and issues	Application scenarios, shadowing	Achievement-oriented; tolerant of ambiguity and complexity
Problems and issues in vocational education	Application scenarios	
Statewide budgeting	Application scenarios	

II. OUTCOMES: IMMEDIATELY AFTER INSTRUCTION

A. Satisfaction

1. Participants felt they were acquainted with the vocational administrator's role and were aided in the decision as to whether or not it should be a part of their career plans (x=4.3, S=.74 on a 5-point scale).
2. Participants reported that they had developed some leadership skills and understanding that would be useful in all their professional roles (x=4.8, S=.38 on a 5-point scale).
3. Participants believed they built supportive network and mentor systems (x=4.4, S=.72 on a 5-point scale).
4. Participants believed they became familiarized with some statewide systems for formulating and implementing vocational education policy in Minnesota (x=4.3, S=.61 on a 5-point scale).
5. Participants rated the Preparing for Education Leadership (PEL) program best or near best of all the educational experiences they have had (x=4.8, S=.51 on a 5-point scale).

B. Perceived Change in Leader Attributes

1. Participants perceived that twenty-five leader attributes had increased significantly (P≤.05) as a result of the PEL program.
2. PEL program objectives called for twenty-two leader attributes to increase. Seventeen of them did (P≤.05), while five did not. The failure of communication; sensitivity, respect; and decision-making to show significant gains was most disappointing because of the attention given to them. On the other hand, eight attributes that were *not* expected to improve did so.
3. Thirteen leader attributes increased ten or more percentage points (on a 100-percentage point scale). These were (a) confident, accepting of self (17 percentage points); (b) delegating (17 percentage points); (c) appropriate use of leadership styles (15 percentage points); (d) tolerant of ambiguity and complexity (15 percentage points); (e) networking (13 percentage points); (f) visionary (12 percentage points); (g) tolerant of frustration (12 percentage points); (h) persistent (11 percentage points); (i) coaching (11 percentage points); (j) conflict management (11 percentage points); (k) planning (10 percentage points); (l) adaptable, open to change (10 percentage points); and (m) willing to accept responsibility (10 percentage points). The other four

leader attributes that changed significantly ($P \leq .05$) increased from four to nine percentage points.

4. These results represent an important, overall positive impact on the perceptions of participants regarding their leader attributes.
5. Table 2 shows the leader attributes by whether or not they increased (statistically) significantly, and whether or not they were a targeted instructional objective of the program.

Table 2

Change in Perception of Leader Attributes Resulting from Instruction

University of Minnesota—PEL (n=25)

Objectives Effect	Targeted Attributes	Non-Targeted Attributes
Statistically Significant Change ($p \leq .05$)	Adaptable, open to change Tolerant of ambiguity and complexity Assertive, initiating Confident, accepting of self Willing to accept responsibility Enthusiastic, optimistic Courageous, risk-taker Committed to the common good Motivating others Conflict management Networking Time management Planning Appropriate use of leadership styles Delegating Information gathering and managing Team building	Insightful Visionary Persistent Tolerant of frustration Emotionally balanced Accountable Coaching Stress management
No Statistically Significant Change	Achievement-oriented Communication Sensitivity, respect Decision-making Problem-solving	Energetic with stamina Dependable, reliable Personal integrity Intelligent with practical judgment Ethical Organizing Ideological beliefs appropriate to the group

C. Linking Outcomes to Activities

1. Five groups of five students each were formed and given about one and a half hours to decide (a) which program activities were most effective, (b) why they were effective, and (c) what impact they had on their leadership skills. The program directors were also asked to consider the same questions.
2. Table 3 presents a summary of the responses by the five groups and the directors. The attributes linked to each effective activity were either mentioned (linked) by the students or the directors, or they were inferred directly from the reasons given for the activity's effectiveness.
3. Table 3 also shows (a) the probability levels associated with gains in *LAI* test scores for linked leader attributes due to the PEL (instructional) program, and (b) whether each linked attribute was a targeted instructional objective of the PEL program. Seventeen targeted instructional objectives were not only linked to program activities but also were statistically ($p \leq .05$) significant.

Table 3
Linking Effective Activities to Changes in Leader Attributes
University of Minnesota—PEL

LINKING EFFECTIVE ACTIVITIES TO CHANGES IN LEADER ATTRIBUTES
University of Minnesota -PEL

Activity (Judged effective)	Seen as effective by students	Seen as effective by project director	Reasons for effectiveness (As seen by students)	Attribute Affected (Linked)		
				As seen by students	Tested P-value	Targeted by Instructor
APPROACH Use of role models (great variety of presenters)	√	√	Exposure to people they hear about but don't often see. Recognition that all could be leaders in their current positions. View different leadership styles and presentation skills.	Appropriate use of leadership styles Willing to accept responsibility Assertive, initiating Enthusiastic, optimistic Achievement-oriented	.000•• .006•• .004•• .018• .066	Y Y Y Y Y
Wide variety of topics and good mix of types of activities	√	√	Helped establish individual goals & objectives. New thoughts & ideas stimulated and new resources discovered.	Planning Adaptable, open to change Tolerant of ambiguity & complexity	.002•• .000•• .000••	Y Y Y
Week retreat	√	√	Forces participant interaction and builds trust and a support group. Focuses attention on tasks (topics). Encourages evaluations of professional & personal goals & helps establish personal priorities. Increases ownership in the program.	Networking Team building Planning Enthusiastic, optimistic	.001•• .012• .002•• .018•	Y Y Y Y
Application scenarios	√	√	Forces reflective thinking. Encourages commitment to change. Helps participant take ownership of the information.	Achievement-oriented Confident, accepting of self Communication	.006•• .000•• .169	Y Y Y
SELF-ASSESSMENT & PLANNING Meyers-Briggs (and LEAD-self)	√	√	Understand how and why individuals act & react as they do. More comfortable with themselves and others. Recognize the benefits of and need for delegating.	Appropriate use of leadership styles Confident, accepting of self Sensitivity, respect Delegating	.000•• .000•• .398 .000••	Y Y Y Y
Shadowing administrators	√	√	Forces taking risks (but keeps them within control). Gives visibility to participants. Can observe demands of the role and the attributes used.	Courageous, risk-taker Assertive, initiating Appropriate use of leadership styles Decision-making Time management Willing to accept responsibility	.000•• .004•• .000•• .066 .049•• .006••	Y Y Y Y Y Y
Networking/ mentoring journal	√	√	Makes extent of activities & resources evident. Forces networking. Reveals how one is spending time and where it is heading.	Networking Planning Communication	.001•• .002•• .169	Y Y Y

Table 3 (cont.)

Activity (Judged effective)	Seen as effective by students	Seen as effective by project director	Reasons for effectiveness (As seen by students)	Attribute Affected (Linked) As seen by students	Tested P-value	Targeted by Instructor
LEADER ATTRIBUTE DEVELOPMENT Networking	√	√	Building support group. Forces taking some risks.	Courageous risk-taker Assertive, initiating Communication Networking	.000** .004** .169 .001**	Y Y Y Y
Persuasion exercise	√	√		Communication Tolerant of ambiguity & complexity Confident, accepting of self Adaptable, open to change	.169 .000* .000** .000**	Y Y Y Y
Influencing legislators	√	√		Courageous risk-taker Communication Information gathering & managing	.000** .169 .049*	Y Y Y
Creative leadership exercise (tea bag)	√	√		Adaptable, open to change Problem-solving	.000** .082	Y Y
Win-win simulation	√	?		Conflict management Problem-solving	.000** .082	Y Y
Uses of power	√	√	Recognition that everyone has power (of several kinds) and that its OK to use it.	Motivating others Sensitivity, respect Assertive, initiating Confident, accepting of self	.003** .398 .004** .000**	Y Y Y Y
Motivating self & others	√	√	Help understand what is important to self.	Confident, accepting of self Motivating others	.000** .003**	Y Y
EXPLORING ADMINISTRATIVE RESPONSIBILITIES Budgeting, legislative process, and panels on problems & issues	√	√	Empowers by increasing ability to become involved in policy matters (knowledge is power). Opens up new professional interests.	Achievement-oriented Tolerant of ambiguity & complexity	.006** .000**	Y Y

*Significant at the .05 level.
**Significant at the .01 level.

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4. One instructional objective, "committed to the common good," could not be linked to any of the activities nominated as effective by the students. In addition, eight leader attributes showed statistically significant increases (see Table 2), but were not instructional objectives nor could they be linked to specific effective activities. One possible explanation is that other instructional activities, not nominated by students in their discussion groups, *did* have a significant impact upon students' perceptions of their leader attributes.

D. Suggestions for Improvement

The five student discussion groups also provided suggestions for improving the program. These suggestions are summarized in Table 4. The directors agreed with many of the student ideas, but questioned some of them.

Table 4
Suggestions for Improvement
University of Minnesota—PEL

Activities	As seen by students	As seen by directors	Suggested Change
APPROACH Program duration	x	x	Extend second and third seminars to three or three-and-a-half days each. This would permit adapting many of the other suggested changes.
Closure	x	x	A "tying together" is needed at the end of the program. This might be a discussion of career development plans, a reunion with former PEL participants, etc. The fact that some assignments are still due after the third (last) seminar adds to the sense of non-closure.
Overview	x	x	An overview of all the topics to be covered at all three seminars should be presented at the opening session to provide a conceptual map, and to help students schedule their outside assignments.
SELF-ASSESSMENT & PLANNING Leadership development plan	x	x	Provide more time for the initial presentation and get feedback on progress during the second and third seminars (e.g., integrate this activity better). It could be a closing activity.
LEADER ATTRIBUTE DEVELOPMENT Independent study paper	x	?	Provide project options in addition to the development of a paper. Results could be shared by a variety of means.
Ethical leadership	x	x	Longer time is needed for this topic. More focus on standards and issues.
Time management	x	?	Topic could be eliminated since many have already been exposed to this.
Managing cultural diversity	x	?	Could utilize a panel representing many cultures to generate clues about how to achieve more effective communication. The topic needs more time.

III. OUTCOMES: SIX-MONTH FOLLOW-UP

A. Practicing Leadership

1. Six months after the conclusion of the program an attempt was made to obtain information about the leadership behavior and performance of former program participants. Twenty-two of the twenty-five former participants responded (88%). Of the twenty-two respondents, sixteen report that, as a result of the

program, they have engaged in a greater number of leadership activities than before they entered the program.

2. The types of additional leadership activities identified included (a) job-related (52%), (b) new professional roles (e.g., promotions, union activities, professional association responsibilities) (31%), (c) community involvement (14%), and (d) social activities (2%).

B. Usefulness of Leader Attributes

1. All of the leader attributes were used by at least twenty-nine percent of the twenty-two responding former participants.
2. The twenty attributes reported by forty-five percent or more of the twenty-two respondents to have been most useful were (a) team building (81%); (b) visionary (71%); (c) assertive, initiating (71%); (d) confident, accepting of self (71%); (e) networking (67%); (f) appropriate use of leadership styles (67%); (g) insightful (62%); (h) willing to accept responsibility (62%); (i) enthusiastic, optimistic (52%); (j) communication (52%); (k) information gathering and managing (52%); (l) decision-making (48%); (m) problem-solving (48%); (n) adaptable, open to change (48%); (o) tolerant of frustration (48%); (p) committed to the common good (48%); (q) ethical (48%); (r) sensitivity, respect (48%); (s) stress management (48%); and (t) accountable (48%).
3. Of the above twenty attributes, eight had also been identified by program participants immediately after instruction as having been impacted by effective program activities *and* had shown statistically significant increases in *LAI* scores. These are (a) team building; (b) assertive, initiating; (c) confident, accepting of self; (d) networking; (e) appropriate use of leadership styles; (f) willing to accept responsibility; (g) enthusiastic, optimistic; and (h) adaptable, open to change. All of the remaining attributes, with the exception of ethical, were either linked to effective activities by participants *or* had shown significant increases on the *LAI*.

C. Leadership Success

Respondents reported the extent to which they believed the program contributed to their success in accomplishing each of six leadership tasks. A rating scale of none (1), little (2), fair amount (3), and great deal (4) was used. The results were as follows:

Leadership Task	x	S
Inspiring a shared vision	3.3	.64
Achieving unity in the group and motivating others	3.3	.72
Implementing change and empowering others	3.3	.72
Exerting influence outside of the group	3.1	.81
Establishing a good learning environment	3.0	.74
Satisfying the professional needs of group members	3.0	.71

D. Additional Leadership Training

1. Seven of the twenty-two respondents were motivated by the leadership program to undertake some additional leadership-related training during the six-month period. Three additional respondents made application to enter graduate/fellowship programs.
2. All seven former participants claim that the training activities undertaken are consistent with self-development plans created during the leadership program.
3. All the training activities were reported as currently underway.
4. The types of leadership training reported were as follows: taking courses and workshops (5); teaching leadership-related topics (2).

IV. OUTCOMES: INSTITUTIONAL IMPACT

A. A new graduate-level course entitled *Leadership Skills for Vocational Education* has been made available through the Department of Vocational and Technical Education within the last two years.

B. A program to prepare administrators for vocational education programs is being developed by the Department of Vocational and Technical Education in collaboration with the Department of Educational Policy and Administration. Fifteen credits of a leadership component is to be required by the program, including a nine credit course similar to PEL and a six credit internship.

C. A proposal is being prepared for the Minnesota Technical College System to conduct a leadership development institute for presidents of the thirty-four technical colleges in the state.

V. COST

	Direct Cost	Indirect Cost (45%)	Total Cost
A. Total cost of program (developing and conducting)	—	—	—
B. Cost of conducting the program (repeating the program)	$45,336*	$20,401	$65,737
C. Average cost per students for conducting the program (n=25)	1,813	816	2,629
D. Cost of adding an additional student	567	255	822
E. Cost per hour of instruction (conducting the program)	504	227	730
F. Cost per participant hour of instruction (conducting the program)	20	9	29

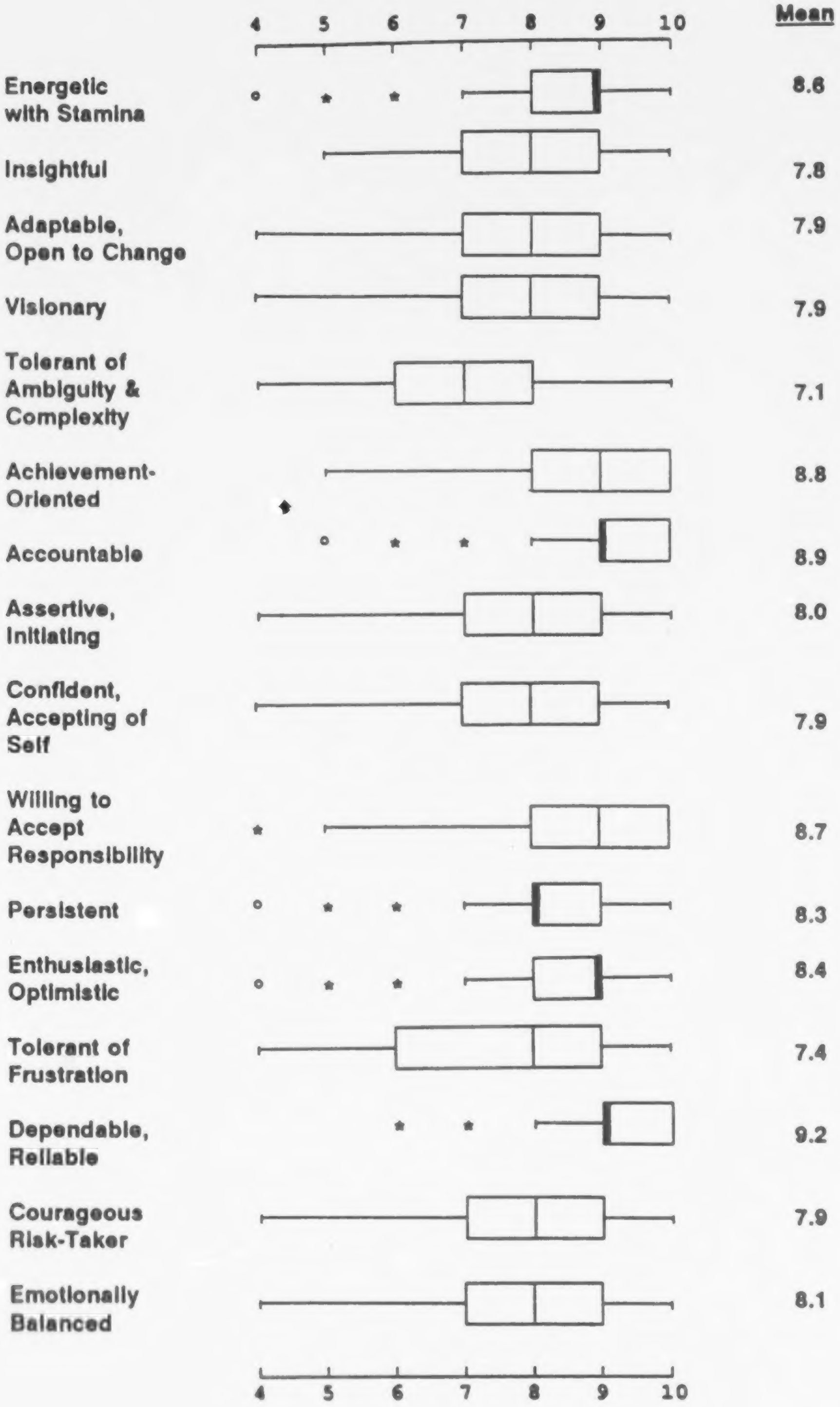
* Include the cost for participants' and staffs' room and board for the five-day summer retreat.

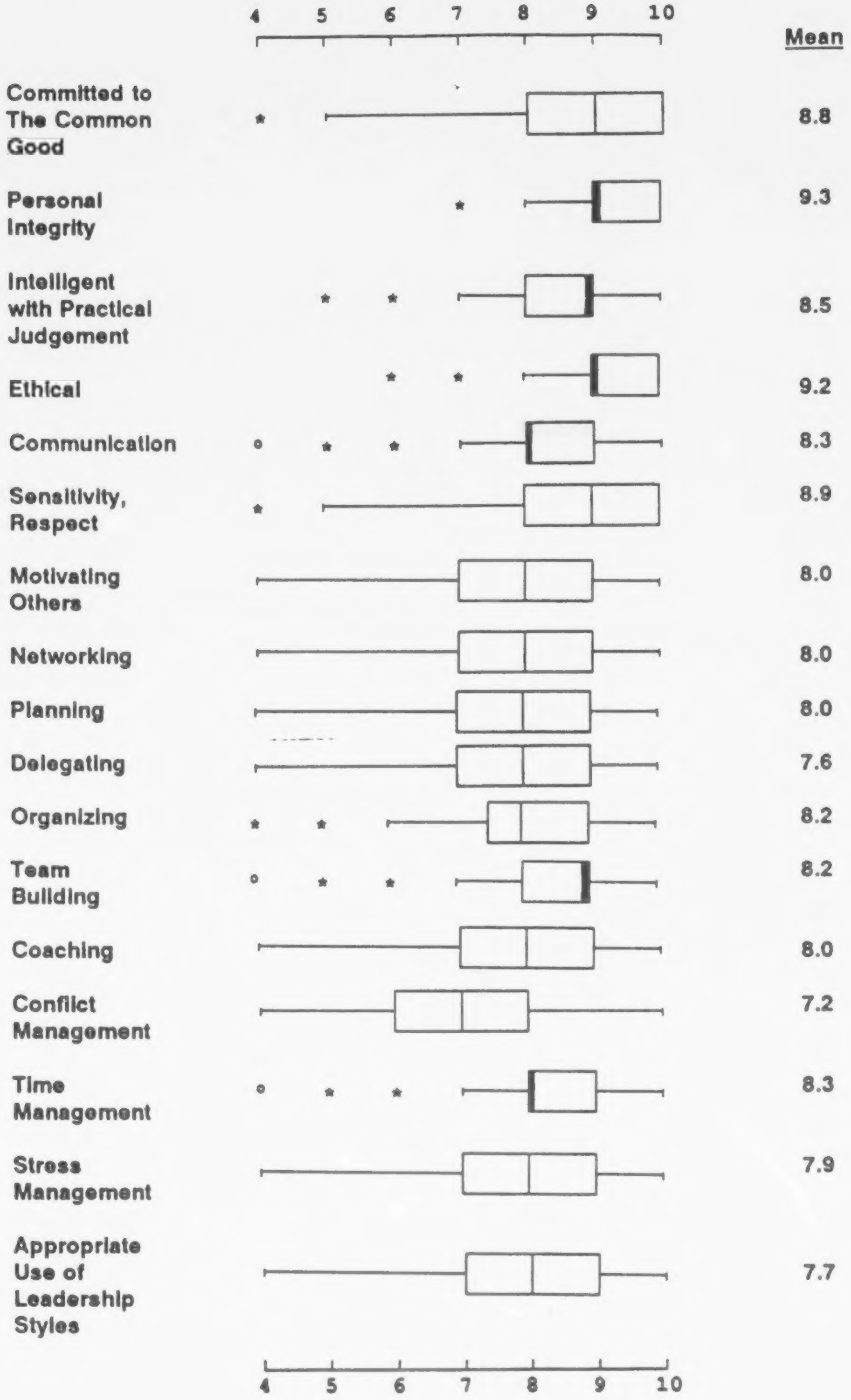
APPENDIX O

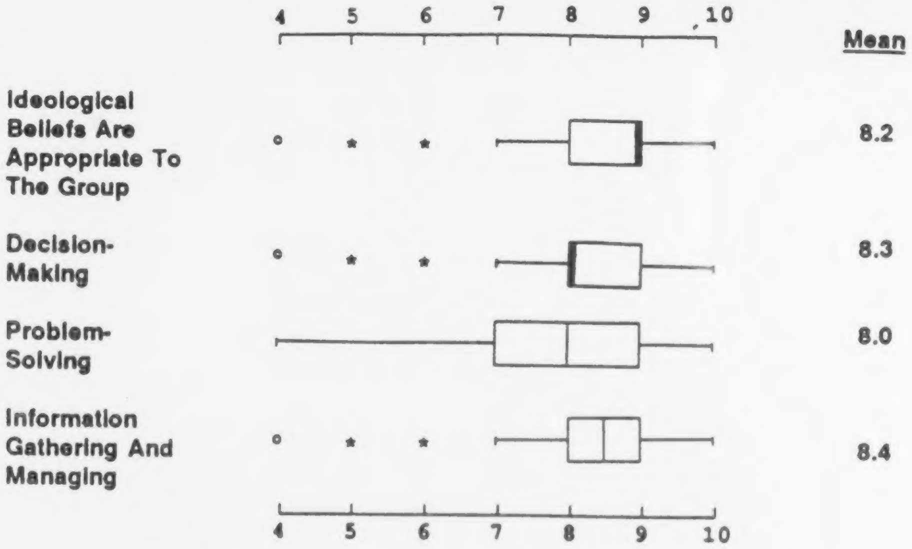
Distribution of Retrospective Scores

1. **Box Plots**
2. **Means, Standard Deviations, and Ranges**

Box Plots* of Graduate Students Leader Attributes: Retrospective Scores** of Graduates Students (n=165)




4 5 6 7 8 9 10
Mean
Committed to The Common Good 8.8
Personal Integrity 9.3
Intelligent with Practical Judgement 8.5
Ethical 9.2
Communication 8.3
Sensitivity, Respect 8.9
Motivating Others 8.0
Networking 8.0
Planning 8.0
Delegating 7.6
Organizing 8.2
Team Building 8.2
Coaching 8.0
Conflict Management 7.2
Time Management 8.3
Stress Management 7.9
Appropriate Use of Leadership Styles 7.7
4 5 6 7 8 9 10



* The center or the heavy line is the median score. The lines forming the outside of the box represent the twenty-fifth and seventy-fifth percentiles. The ends of the horizontal lines approximate the second and the ninety-eighth percentiles. Asterisks indicate scores below the second percentile.

** Intervals on the scale and the means should be multiplied by ten to indicate the percentage of time respondents utilized the attributes.

Means, Standard Deviations, and Ranges* of Retrospective Scores of Graduate Students on Leader Attributes (n=165)

Item	x	S	Max	Min
1. Energetic with stamina	85.70	12.75	100.00	40.00
2. Insightful	78.06	13.48	100.00	50.00
3. Adaptable, open to change	78.73	14.53	100.00	40.00
4. Visionary	78.91	15.93	100.00	40.00
5. Tolerant of ambiguity and complexity	71.21	17.35	100.00	40.00
6. Achievement-oriented	87.76	11.39	100.00	50.00
7. Accountable	89.15	11.60	100.00	50.00
8. Assertive, initiating	80.42	15.12	100.00	40.00
9. Confident, accepting of self	78.61	16.45	100.00	40.00
10. Willing to accept responsibility	87.09	13.34	100.00	40.00
11. Persistent	82.55	13.05	100.00	40.00
12. Enthusiastic, optimistic	84.09	13.42	100.00	40.00
13. Tolerant of frustration	74.06	16.52	100.00	40.00
14. Dependable, reliable	91.82	8.14	100.00	60.00
15. Courageous, risk-taker	79.21	15.26	100.00	40.00
16. Emotionally balanced	80.55	15.47	100.00	40.00
17. Committed to the common good	88.42	10.76	100.00	40.00
18. Personal integrity	93.03	7.92	100.00	70.00
19. Intelligent with practical judgment	85.45	10.21	100.00	50.00
20. Ethical	91.94	9.30	100.00	60.00
21. Communication	83.03	12.02	100.00	40.00
22. Sensitivity, respect	88.73	12.65	100.00	40.00
23. Motivating others	79.94	14.42	100.00	40.00
24. Networking	80.30	15.71	100.00	40.00
25. Planning	79.51	14.18	100.00	40.00
26. Delegating	76.36	16.71	100.00	40.00
27. Organizing	82.13	13.60	100.00	40.00
28. Team building	82.30	14.51	100.00	40.00
29. Coaching	80.37	14.73	100.00	40.00
30. Conflict management	72.30	17.24	100.00	40.00
31. Time management	82.68	14.49	100.00	40.00
32. Stress management	78.85	16.39	100.00	40.00
33. Appropriate use of leadership styles	76.83	16.27	100.00	40.00
34. Ideological beliefs are appropriate to the group	82.36	13.52	100.00	40.00
35. Decision-making	82.79	11.87	100.00	40.00
36. Problem-solving	79.94	13.41	100.00	40.00
37. Information gathering and managing	84.14	11.51	100.00	40.00

* Percentage points on a 100-percentage point scale.